PHOTO LAB

REPORT

of the

SAN FRANCISCO WATER DEPARTMENT

FISCAL YEAR

1963-1964

H. C. MEDBERY
Assistant General Manager and Chief Engineer

(REC'D 3-10-65)

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REPORT FOR FISCAL YEAR
JULY 1, 1963 TO JUNE 30, 1964

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JAMES H. TURNER DAM
Construction Approximately 70% Complete

SAN FRANCISCO WATER DEPARTMENT

H. C. MEDBERY
Assistant General Manager and Chief Engineer

Fiscal year 1963-64 was an important one for the San Francisco Water Department in carrying out the planned program directed toward providing water of highest quality in sufficient quantity to meet present and future needs of customers in San Francisco, San Mateo, Santa Clara and Alameda Counties. During the fiscal year systemwide consumption was at an average rate of 196.7 million gallons of water per day, which is more than 376% of the water consumed in 1930 when the San Francisco Water Department took over the property and operations of the Spring Valley Water Company. The Water Department has been entirely self-supporting during all of the intervening thirty-four years and at a time when many water utilities find it necessary to raise their charges for water, San Francisco, effective May 1, 1962, reduced the rates charged for water by about 6.3%, which rates were already about 10% lower than those in effect in 1930.

In order to finance and construct the storage reservoirs, transmission pipelines, treatment plants, distribution reservoirs, distribution mains and service facilities to meet the demand for water when it is needed, long range planning by the Department is required. In order to provide financing for a number of needed major projects the electorate approved a $115,000,000 Water Improvement Bond Issue in November 1961. Construction progress on bond projects is on or ahead of schedule. James H. Turner Dam in Alameda County was about 70% completed, Bay Division Pipeline No. 4 Section B was about 90% completed, surveys for Section A of Bay Division Pipeline No. 4 and preliminary surveys and test borings for the tunnel section of the Bay Division to Crystal Springs Bypass were nearing completion by the end of the fiscal year June 30, 1964.

The proposed construction of Junipero Serra Freeway through Peninsula Watershed property, active consideration of compatible recreational uses of watershed properties, and the continuing problem of intermittent periods of high bacteriological count in water drawn from San Andreas and Crystal Springs Reservoirs focused attention upon planning and construction of water treatment facilities. During 1963-64 studies were completed, plans prepared and advertised for construction of the Sunol (San Antonio-Calaveras) Water Treatment Plant. Preliminary studies were made by consultants and received by the Department for design of San Andreas Water Treatment Plant. Construction of San Andreas No. 3 West chlorination station was nearly complete and equipment

purchase orders and designs for dechlorination stations on Crystal Springs and San Andreas Pipelines were nearing completion at the end of the fiscal year.

On the week-end of February 15, 1964, all of the functions of the City Distribution Division and Shops Division formerly divided between the 639 Bryant Street yard and the 425 Mason Street office were moved to the new Corporation Yard at 1990 Newcomb Avenue. This move was an historic one as the Bryant Street Yard started operation in the 1880's and had functioned as the consolidated Corporation Yard for the Spring Valley Water Company and its successor, the San Francisco Water Department, since 1906.

The Department has been working, together with consultants, on the conversion of Water Department billing to utilize Electronic Data Processing equipment and methods. In order to maintain continuous operations, the present billing procedure must continue throughout a period of testing followed by a period of parallel billing by both methods to check the accuracy of the new system. At the close of the fiscal year a series of test runs were in progress, with parallel billing expected to begin about October 1, 1964.

The Water Department is one of the agencies, formerly served by separate telephone exchanges, to be included in the new "Centrex" telephone exchange being installed in the City Hall. All of the planning, installing, and much of the testing of equipment was completed by the end of June.

During the fiscal year the five-year valuation of the Water Department's properties, as required by Section 128 of the Charter, was completed by the firm of Hood and Strong, CPA.

In the past year the Water Department lost the services of its two top executives through retirement. Mr. James H. Turner, General Manager and Chief Engineer, retired on September 1, 1963 and just three months later, Mr. George D. Burr, Assistant General Manager and Chief Engineer, also retired. Mr. Turner and Mr. Burr provided guidance to the Department through crucial years of development, and their major contribution to the sound growth and high standards of service within San Francisco's municipally owned utility system deserves the utmost appreciation of its citizenry.

Rainfall on the Peninsula Watershed areas in San Mateo County ranged from a low of 16.29 inches at Lower Crystal Springs gaging station to a high of 25.41 inches at Pilarcitos.

Data from the Department's five gaging stations on the Peninsula Watershed indicate rainfall for 1963-64 ranging from 66% to 77% of normal. At Calaveras Reservoir in Southern Alameda County the rainfall totaled 15.07 inches for the year, which is 69% of normal.

During the fiscal year the consumption of water in San Francisco averaged 95.8 million gallons per day, an increase of 8.1 million gallons per day, or 9.2%. The suburban consumption averaged 100.9 million gallons daily, which is an increase of 9.4 million gallons daily, or 10.3%. The overall system consumption averaged 196.7 million gallons per day, which is an increase of 17.5 million gallons per day, or 9.8% over last year.

Similar reports to the above of water use for fiscal years prior to 1960-61 showed water used in the San Francisco "consumption area" (which area included about 47 square miles of northern San Mateo County) rather than the use only within the City and County of San Francisco. Therefore, such figures from fiscal years' reports prior to 1960-61 are not directly comparable with those above shown herein.

This fiscal year's peak in daily water consumption for the entire system occurred on June 22 with 304.7 million gallons being used, as compared to the previous all-time peak of 310.2 million gallons which occurred June 14, 1961. The 304.7 million gallons is 54.9% more than the yearly average of 196.7 million gallons per day.

The day of minimum demand during this fiscal year occurred on December 25, 1963 when 128.4 million gallons were used, or 65.3% of the yearly average.

The highest average daily demand for any month during this fiscal year occurred during July 1963 with an average of 251.6 million gallons daily being consumed during the period. This compares to 224.8 million gallons per day average for July 1962, an increase of 26.8 million gallons or 11.9%.

Water sales for 1963-64 amounted to $17,872,495 which includes the free water furnished to other San Francisco municipal departments amounting to $1,152,243. This $17,872,495 represents an increase of $1,167,243 or 7.0% over the previous year. Credit allowances totaling $56,691 which were applied to customers' bills are not included in the above total of $17,872,495. Accounts within the City increased $371,032, making total net sales within the City of $10,653,494 which is 59.6% of the value of Department's total net water sales.

Suburban net sales increased $796,211 to a total of $ 7,219,001 or 40.4% of the value of the total water sales. The above figures represent the amount of billing for water during 1963-64, including the municipal non-paying accounts, and do not represent the amounts collected during the fiscal year.

The miscellaneous income of the Department from sale of lands, rentals, interest earned, agricultural operations, etc., totaled $1,128,892, making the total gross income (book value) for the year of $19,001,387, of which $1,152,243 represents non-paying San Francisco municipal accounts, and $318,982 came from the sale of real estate and other assets, resulting in a gross net operating income (book value) of $17,530,162.

The number of active accounts on June 30, 1964 totaled 157,202. The total number of meters in service was 161,759, of which 2,133 were temporarily shut off.

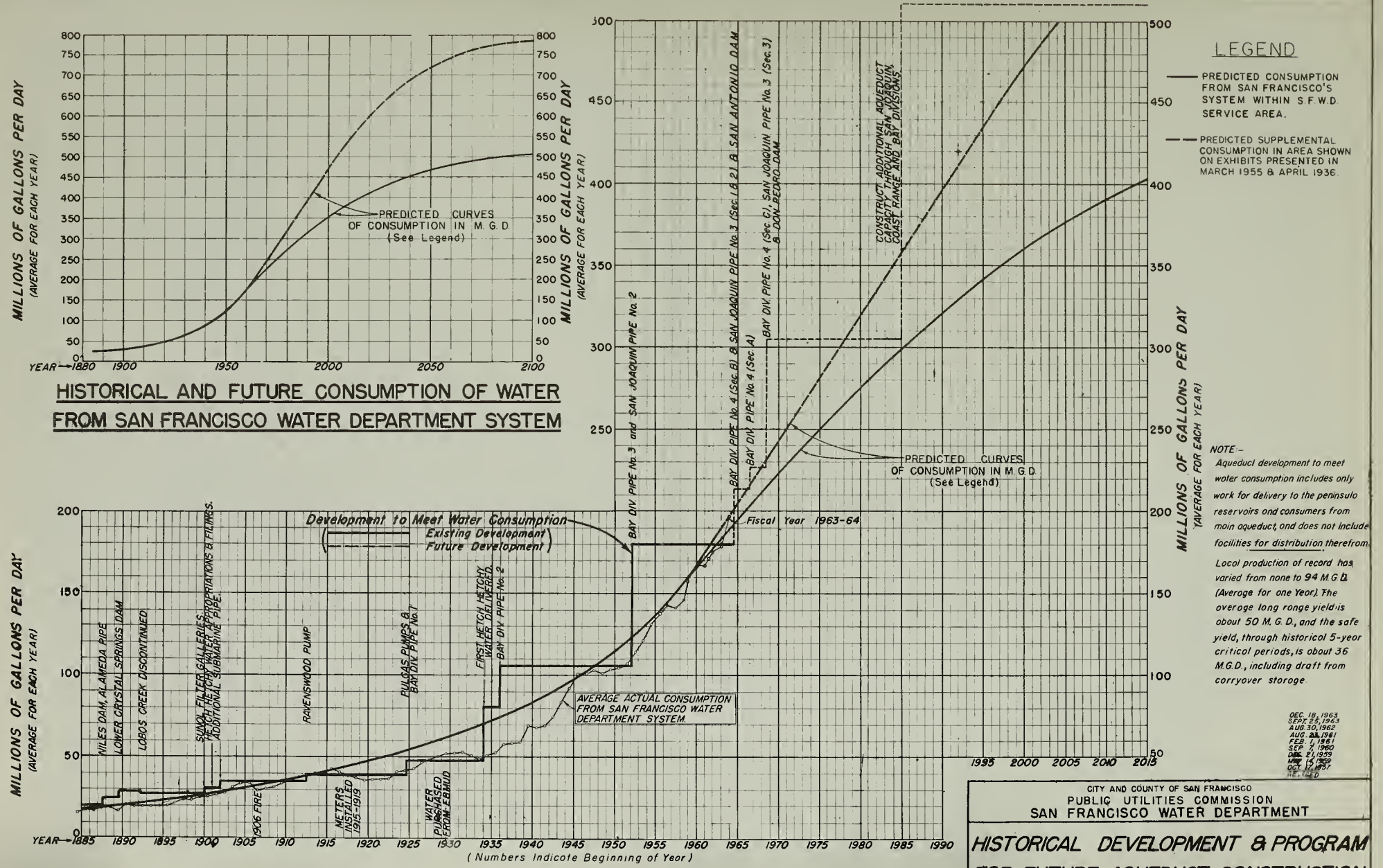
During the year 3.680 acres of land were sold and 0.067 acres purchased, making a net decrease of 3.613 acres which left a total of 63,040.887 acres under jurisdiction of the Department on June 30, 1964. Where real estate is no longer needed in the operation of the Department and for which no future use can be foreseen, it is sold.

Contracts were maintained with the Alameda County Assessor's office again during 1963-64. The land assessments indicate a decrease of $450 for a total land assessment of $1,242,950; improvements assessment increased $2,000 to a total of $2,099,700; water rights remained the same at a total of $1,800,250. The total change in these assessments is an increase of $1,550 above the previous year.

The total money spent on contracts, including the engineering and inspection costs on the cast iron main contracts, during the year was about $12,489,700 which includes about $9,076,000 of Bond Project work.

This foreword would not be complete without expressing a sincere appreciation to our personnel for their loyalty, devotion to duty and cooperative efforts in maintaining and improving the efficiency of the Department.

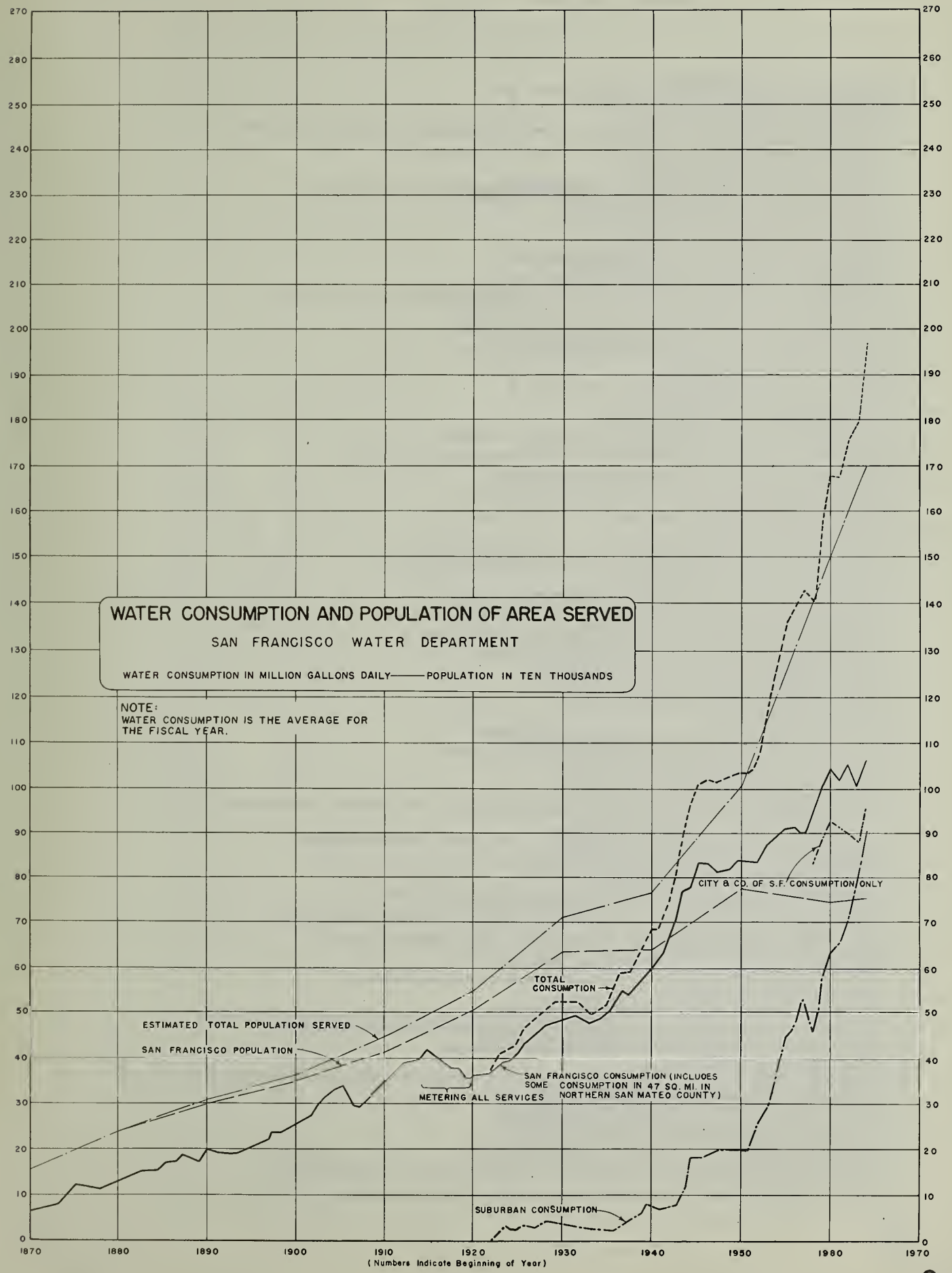
Following is a more detailed account of the Water Department operations with some figures, subject to minor changes, as final accounting figures are not as yet completed.


MILLIONS OF GALLONS PER DAY
(AVERAGE FOR EACH YEAR)
YEAR → 1880 1900 1950 2000 2050 2100
PREDICTED CURVES OF CONSUMPTION IN M.G.D. (See Legend)
HISTORICAL AND FUTURE CONSUMPTION OF WATER FROM SAN FRANCISCO WATER DEPARTMENT SYSTEM
LEGEND
PREDICTED CONSUMPTION FROM SAN FRANCISCO'S SYSTEM WITHIN S.F.W.D. SERVICE AREA.
PREDICTED SUPPLEMENTAL CONSUMPTION IN AREA SHOWN ON EXHIBITS PRESENTED IN MARCH 1955 & APRIL 1936.
Development to Meet Water Consumption
Existing Development
Future Development
BAY DIV. PIPE No. 3 and SAN JOAQUIN PIPE No. 2
BAY DIV. PIPE No. 4 (Sec. B) & SAN JOAQUIN PIPE No. 3 (Sec. 1 & 2) & SAN ANTONIO DAM
BAY DIV. PIPE No. 4 (Sec. A)
BAY DIV. PIPE No. 4 (Sec. C), SAN JOAQUIN PIPE No. 3 (Sec. 3) & DON PEDRO DAM
CONSTRUCT ADDITIONAL AQUEDUCT CAPACITY THROUGH SAN JOAQUIN, COAST RANGE AND BAY DIVISIONS.
Fiscal Year 1963-64
PREDICTED CURVES OF CONSUMPTION IN M.G.D. (See Legend)
AVERAGE ACTUAL CONSUMPTION FROM SAN FRANCISCO WATER DEPARTMENT SYSTEM.
NOTE -
Aqueduct development to meet water consumption includes only work for delivery to the peninsula reservoirs and consumers from main aqueduct, and does not include facilities for distribution therefrom.
Local production of record has varied from none to 94 M.G.D. (Average for one Year). The average long range yield is about 50 M.G.D., and the safe yield, through historical 5-year critical periods, is about 36 M.G.D., including draft from carryover storage.
DEC. 18, 1963
SEPT. 25, 1963
AUG. 30, 1962
AUG. 28, 1961
FEB. 1, 1961
SEP. 7, 1960
DEC. 21, 1959
MAY 15, 1959
OCT. 17, 1957
RELEASED
WILES DAM, ALAMEDA PIPE
LOWER CRYSTAL SPRINGS DAM
LOBOS CREEK DISCONTINUED
SUNOL FILTER GALLERIES
HETCH HETCHY WATER APPROPRIATIONS & FILINGS.
ADDITIONAL SUBMARINE PIPE.
1906 FIRE
RAVENSWOOD PUMP
METERS INSTALLED 1915-1919
PULGAS PUMPS & BAY DIV. PIPE No. 1
FIRST HETCH HETCHY WATER DELIVERED.
BAY DIV. PIPE No. 2
WATER PURCHASED FROM E.B.M.U.D.
YEAR → 1885 1890 1895 1900 1905 1910 1915 1920 1925 1930 1935 1940 1945 1950 1955 1960 1965 1970 1975 1980 1985 1990 1995 2000 2005 2010 2015
(Numbers Indicate Beginning of Year)

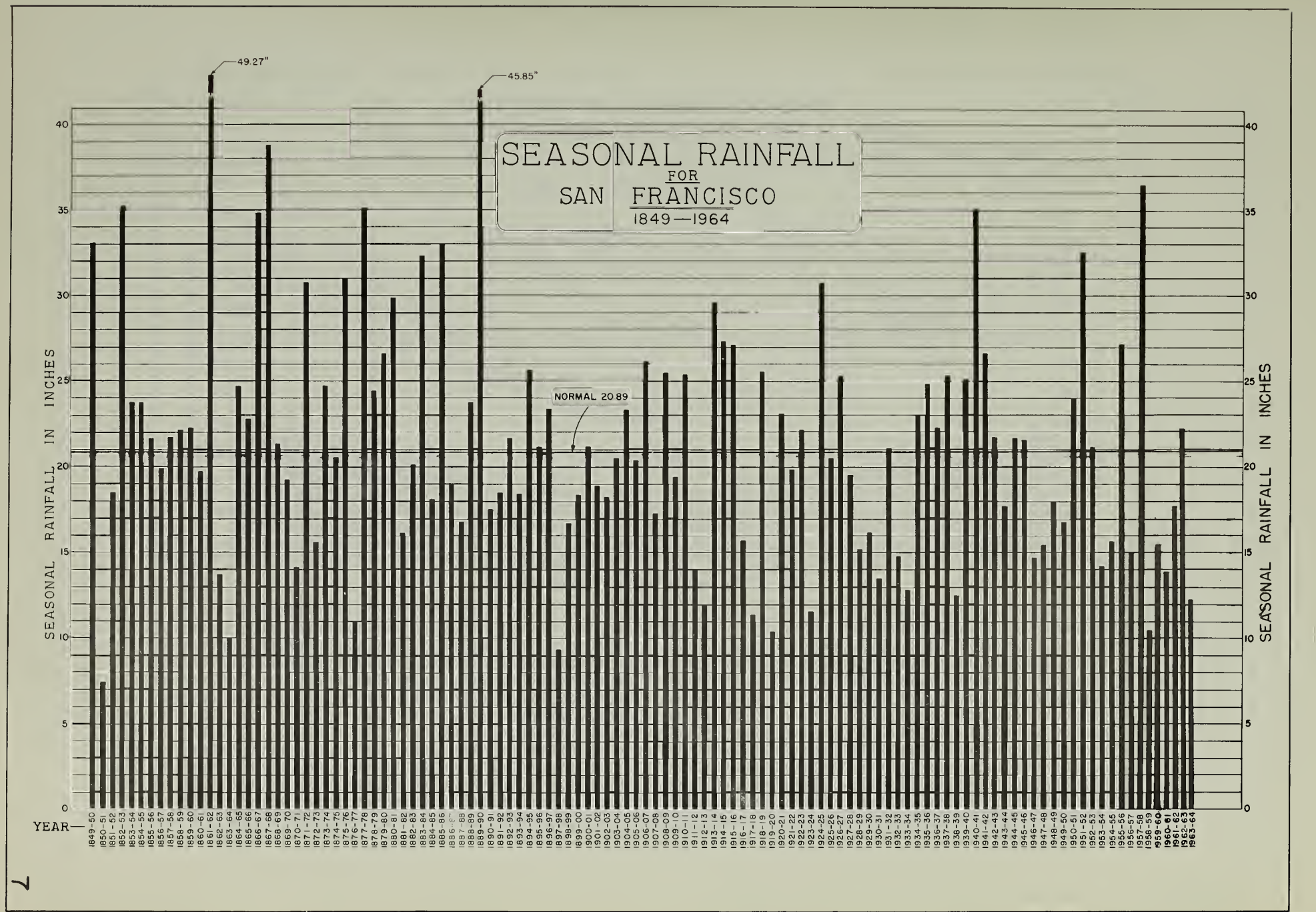
CITY AND COUNTY OF SAN FRANCISCO
PUBLIC UTILITIES COMMISSION
SAN FRANCISCO WATER DEPARTMENT

HISTORICAL DEVELOPMENT & PROGRAM FOR FUTURE AQUEDUCT CONSTRUCTION

APPROVED: Leo V. Burr	SCALE: AS SHOWN	BY: J.S.G.	DR: D.J.S.	DRAWING NO. X-16820
APPROVED: J. K. Turner, GENERAL MANAGER AND CHIEF ENGINEER		TR: D.J.S.	CH:	
		DATE: NOV. 8, 1955	REVISED:	


WATER CONSUMPTION AND POPULATION OF AREA SERVED
SAN FRANCISCO WATER DEPARTMENT
WATER CONSUMPTION IN MILLION GALLONS DAILY——POPULATION IN TEN THOUSANDS
NOTE:
WATER CONSUMPTION IS THE AVERAGE FOR THE FISCAL YEAR.
CITY & CO. OF S.F. CONSUMPTION ONLY
TOTAL CONSUMPTION
ESTIMATED TOTAL POPULATION SERVED
SAN FRANCISCO POPULATION
SAN FRANCISCO CONSUMPTION (INCLUDES SOME CONSUMPTION IN 47 SQ. MI. IN NORTHERN SAN MATEO COUNTY)
METERING ALL SERVICES
SUBURBAN CONSUMPTION
(Numbers Indicate Beginning of Year)

X-1124


SEASONAL RAINFALL
FOR
SAN FRANCISCO
1849—1964
49.27"
45.85"
NORMAL 20.89
SEASONAL RAINFALL IN INCHES
SEASONAL RAINFALL IN INCHES
YEAR
0
5
10
15
20
25
30
35
40
1849-50
1850-51
1851-52
1852-53
1853-54
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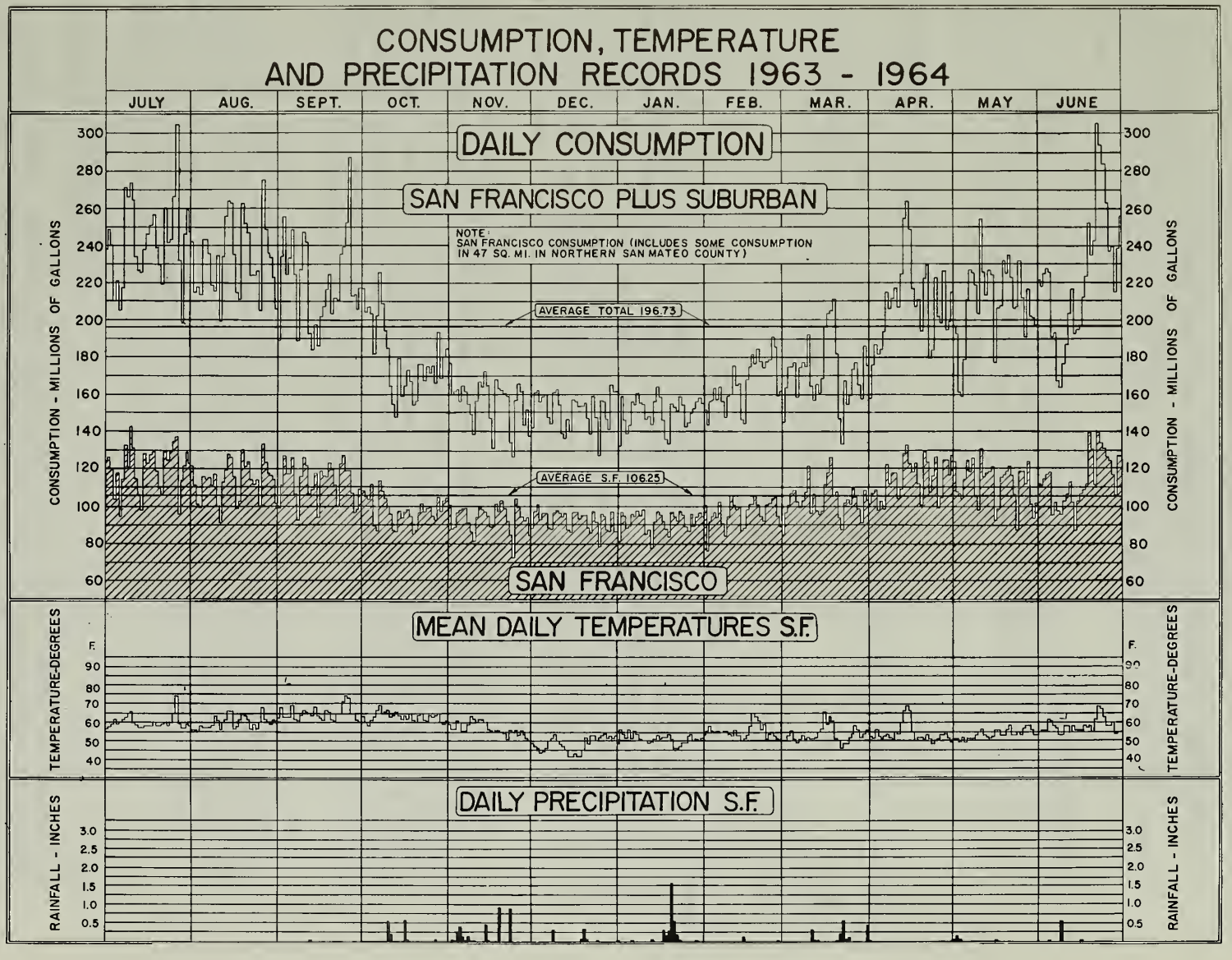
1959-60
1960-61
1961-62
1962-63
1963-64


CONSUMPTION, TEMPERATURE
AND PRECIPITATION RECORDS 1963 - 1964
JULY
AUG.
SEPT.
OCT.
NOV.
DEC.
JAN.
FEB.
MAR.
APR.
MAY
JUNE
DAILY CONSUMPTION
SAN FRANCISCO PLUS SUBURBAN
NOTE:
SAN FRANCISCO CONSUMPTION (INCLUDES SOME CONSUMPTION
IN 47 SQ. MI. IN NORTHERN SAN MATEO COUNTY)
AVERAGE TOTAL 196.73
AVERAGE S.F. 106.25
SAN FRANCISCO
CONSUMPTION - MILLIONS OF GALLONS
300
280
260
240
220
200
180
160
140
120
100
80
60
MEAN DAILY TEMPERATURES S.F.
TEMPERATURE-DEGREES
F.
90
80
70
60
50
40
DAILY PRECIPITATION S.F.
RAINFALL - INCHES
3.0
2.5
2.0
1.5
1.0
0.5

X-1124 D

PRODUCTION AND TRANSMISSION

Total water provided for consumption during the year was 72,003.716 million gallons, averaging 196.731 million gallons per day, which is 17.548 million gallons per day more than during the preceding year.

Deliveries within the City and County of San Francisco averaged 95.8 million gallons daily, with deliveries to suburban areas in San Mateo, Santa Clara and Alameda Counties averaging 100.9 million gallons daily.

Deliveries for Consumption:

From Hetch Hetchy	50,298.530 million gallons		(69.9%)
From local production & carry over storage	21,705.186	" "	(30.1%)
Total	72,003.716	" "	(100.0%)

The total delivery from Hetch Hetchy this fiscal year of 50,298.530 million gallons averaged 137.4 million gallons per day throughout the year. The average daily delivery of water, from all sources for consumption from July 1, 1934 through June 30, 1964, has been 110.85 million gallons, of which 68.69 million gallons or 62.0% have come from Hetch Hetchy and 42.16 million gallons or 38.0% from local production.

All water supplied to the City and County of San Francisco was, as heretofore, delivered entirely from San Andreas and Crystal Springs Reservoirs in San Mateo County. Those reservoirs were replenished from local run-off, by water drawn from Calaveras Reservoir and the Sunol Filter Galleries in Alameda and Santa Clara Counties, and from the Hetch Hetchy System in the Sierra Nevada Mountains.

This Department delivers water directly from the several transmission and supply lines to practically all cities and districts in San Mateo County; to Palo Alto, Mountain View, Sunnyvale, Los Altos and Milpitas in Santa Clara County; to Hayward, Fremont and Newark in Alameda County and to some unincorporated areas in the three counties.

Rainfall and Catchment:

The total amount of run-off from the local watersheds which was stored and/or diverted into the system for consumption was 14.4 million gallons per day average for the fiscal year, exclusive of production from the Sunol Filter Galleries. This is 35.6 million gallons per day less than the current

normal average production of about 50 million gallons per day; and is 51.7 million gallons per day less than the 1962-63 fiscal year average production. The precipitation, output, input, storage changes and productions are given in detail for the local reservoirs below.

At Calaveras there were 15.07 inches of rainfall for the season, which is 69% of normal and is 66% of last season. During the fiscal year 15,060.1 million gallons were withdrawn for consumption and the net decrease in storage was 11,433.4 million gallons, making a usable productivity of 3,626.8 million gallons, an average of 9.9 million gallons per day for the fiscal year. Total runoff into this reservoir, including 462.3 million gallons released to the creek to satisfy water rights and similar requirements, was 4,089.1 million gallons or 11.2 million gallons per day average for this year.

Peninsula watershed rainfall averaged about 60.3% of normal as indicated by the readings at the five rain gaging stations on the watersheds. The rainfall at the San Andreas station was 21.14 inches which was 57.9% of normal; at Pilarcitos 25.41 inches, 56.9% of normal; at Lower Crystal Springs station 16.29 inches or 60.1% of normal; Upper Crystal Springs station 18.74 inches which was 60.0% of normal; and at the Crystal Springs Cottage station 17.50 inches or 66.6% of normal.

Total storage in the four Peninsula reservoirs was decreased 4,710.6 million gallons during the year. The Bay Division pipelines delivered 41,478.0 million gallons to Crystal Springs Reservoir and there were 46,372.4 million gallons withdrawn from Crystal Springs and San Andreas for consumption. Usable production from the four reservoirs amounted to 5,284.3 million gallons or an average for the year of 14.4 million gallons per day.

The Sunol rainfall station recorded 13.96 inches for the year which was 69.6% of normal and 59.1% of last season. During this fiscal year about 1,524.6 million gallons, an average of 4.2 million gallons per day, were collected in the Sunol Filter Galleries as measured at the Brightside Weir.

Rainfall at the Pleasanton Well Field gaging station was 11.79 inches for the year. This was 58.7% of normal and 54.3% of the previous year's rainfall.

Storage:

Calaveras storage on July 1, 1963 was 29,231 million gallons (gage 142' $4\frac{1}{2}$") or 92.6% of its capacity. Storage dropped to 17,246 million gallons (gage 111' $11\frac{1}{4}$") on

January 17, 1964. Withdrawal for consumption was stopped on January 19, 1964 and was resumed on February 23, 1964. Withdrawal was stopped again on February 26, 1964 and was resumed on April 16, 1964, and withdrawals continued during the balance of the fiscal year. The seasonal rains raised the reservoir water level to a gage height of 121' 1½" on April 15, 1964, or 20,529 million gallons. By July 1, 1964 the reservoir water level was at gage height of 113' 6½" with 17,798 million gallons stored. This was 56.4% of its capacity and 11,433 million gallons less than at the beginning of the fiscal year.

Crystal Springs storage at the beginning of the year was 18,860 million gallons (gage 113' 10½") which was drawn down to 14,571 million gallons (gage 102' 11¼") on January 8, 1964. It was filled to 16,817 million gallons (gage 108' 11") on February 17, 1964. On July 1, 1964 there were 15,771 million gallons (gage 106' 2½") of water in storage which was 82.9% of the capacity without flashboards (or 69.8% with flashboards) and 3,089 million gallons less than at the beginning of the year.

San Andreas storage on July 1, 1963 was 5,941 million gallons (gage 84' 4") which was decreased to 3,883 million gallons (gage 70' 3") on October 8, 1963. This was increased to 5,342 million gallons (gage 80' 6¼") on April 5, 1964. At the end of the year the reservoir was 72.3% full, containing 4,473 million gallons, a decrease of 1,468 million gallons during the year.

Pilarcitos contained 942 million gallons (gage 42' 0-3/4") of water at the beginning of the year. Withdrawals reduced the storage to the year's low of 671 million gallons (gage 33' 7") on February 3, 1964. On July 1, 1964 there were 789 million gallons (gage 37' 5") in storage, which is 81.0% of capacity, with flashboards, and 153 million gallons less than at the beginning of the fiscal year.

Lake Merced water has not been withdrawn for domestic consumption since January 4, 1934 but it still remains an emergency source of water supply, and an average of about 0.3 million gallons per day is being withdrawn annually for irrigation on Harding Park Golf Course.

Transmission Lines:

Calaveras Pipeline carried a total of 14,844.2 million gallons (40.6 million gallons per day) from the reservoir to Alameda Creek siphon. The line was shut down between January 19, 1964 and April 16, 1964 except for the short period of February 23 through February 26, 1964, during which time Calaveras draft was resumed due to a partial shutdown of Hetch

Hetchy Aqueduct in order to repair a valve broken by a contractor. In addition to the above 14,844.2 million gallon draft, 462.3 million gallons were drawn from Calaveras Reservoir to satisfy prior water rights requirements and for flushing the pipeline and filter gallery area.

The Sunol Pipeline delivered a total of 797.8 million gallons (2.18 million gallons per day) of water to the Sunol area from the Alameda Creek Siphon during the year. Of this total 473.1 million gallons (1.29 million gallons per day) were used for irrigation of the Water Department lands, 28.5 million gallons (0.08 million gallons per day) were used for the Sunol domestic supply, and 296.1 million gallons (0.81 million gallons per day) for miscellaneous consumption. Deliveries directly to consumers from the siphon totaled 210.6 million gallons (0.58 million gallons per day), out of which 204.3 million gallons (0.56 million gallons per day) were delivered to the General Electric Co. at Vallecitos. The balance went to other small consumers.

The Sunol Aqueduct transported 1,524.6 million gallons (4.2 million gallons per day) of Sunol Filter Gallery water to Niles Reservoir during the year. As of May 24, 1963, the 36" Alameda Pipeline was under lease agreement with the Alameda County Water District; 870.0 million gallons were transported through the 44" Niles-Irvington Pipeline to the Irvington Pump Station and thence to Crystal Springs Reservoir; and 70.0 million gallons (0.2 million gallons per day) were spilled into Clark Ditch and thence to Alameda County Water District; all of which uses of the water by Alameda County Water District were to satisfy water rights and related requirements. There was a decrease in storage of 2,300,000 gallons in Niles Reservoir during the year.

The Coast Range Tunnel carried 50,162.5 million gallons of Hetch Hetchy water to the Alameda Creek Siphon (137.1 million gallons per day average). A total of 14,844.2 million gallons (40.6 million gallons per day) was released from Calaveras Reservoir into the Alameda Siphon, making a total input of 65,006.7 million gallons (177.7 million gallons daily) into the siphon. Deliveries therefrom to the Sunol and Livermore areas total 1,016.6 million gallons (2.8 million gallons per day) and the remaining 63,990.2 million gallons (an average of 174.8 million gallons per day) was carried through the Irvington Tunnel.

Consumers withdrew 2,740.8 million gallons between Irvington Portal and the Irvington Meters, where there was registered a total flow in the three Bay Division Pipelines of 61,249.4 million gallons. Withdrawals between the Irvington Meters and San Francisco Bay, and its continuation to Coyote River, amounted to 1,914.0 million gallons and there was a total

of 870.0 million gallons pumped into Bay Division Pipeline No. 1 at Irvington Pumps; the remaining 60,205.4 million gallons were transported to the Peninsula Division. Additional withdrawals of 18,727.4 million gallons on the west side of the Bay and west of Coyote River, left a total of 41,478.0 million gallons (113.3 million gallons per day) which were delivered through Pulgas Tunnel to Upper Crystal Springs Reservoir. There was 66.7 million gallons per day average consumption of water from the aqueduct east of Crystal Springs Reservoir.

The two Crystal Springs pipelines carried an average of 96.6 million gallons per day from Lower Crystal Springs Reservoir. This was distributed as follows: to Sunset Pipeline and thence to Lake Merced Pump Station, 43.9 million gallons per day; to University Mound distribution system and to consumers between there and the Millbrae Headquarters, 27.3 million gallons per day; and the remaining 25.3 million gallons daily to the distribution systems of the several Peninsula communities as far south as San Carlos.

San Andreas Pipeline No. 2 carried an average of 27.8 million gallons daily from the reservoir to the Sunset Reservoir and College Hill Reservoir distribution systems, and to the consumers along the pipeline.

The Baden-Merced Pipeline carried an average of 5.9 million gallons per day, a total of 2,173.0 million gallons, to the Merced-Manor district. The San Andreas South (No. 1) outlet was not used this fiscal year to withdraw water from the reservoir. The City of Millbrae service at Taylor Field was supplied 396.9 million gallons of water from San Andreas Reservoir through the Middle (No. 3) outlet, Sunset-San Andreas Branch, cross connection at Reservoir and San Andreas Pipeline No. 1 (44"). In addition to the 396.9 million gallons there was withdrawn through the Middle outlet 175.4 million gallons to the Sunset-San Andreas Branch Pipeline.

The Crystal Springs San Andreas Aqueduct was in operation during the entire year, carrying a total of 10,214.5 million gallons (27.9 million gallons per day) of water from the Crystal Springs Pumps to San Andreas Reservoir. In addition, this aqueduct serves as part of the means of delivering San Mateo Creek Dam No. 2 water to San Andreas Reservoir, and also serves as the means of delivering water to San Andreas that is collected along the east side of San Andreas Creek.

The Pilarcitos Aqueduct to San Andreas Reservoir was in service 32 weeks during the year and carried an average of 2.0 million gallons per day throughout the year to San Andreas Reservoir.

Pump Stations:

The Irvington Pumps were operated 23 weeks during the fiscal year 1963-64, pumping 870.0 million gallons (an annual average of 2.4 million gallons per day) of water from the Irvington 44" Pipeline into Bay Division Pipeline No. 1.

One or more of the Crystal Springs-San Andreas Pumps operated the entire year. A total of 10,214.5 million gallons was pumped to San Andreas Reservoir, making a daily average of 27.9 million gallons. Crystal Springs booster pumps were not operated during the year.

The Baden Pumps were not operated during the 1963-64 fiscal year. The motors were kept dry and turned over every month and the station was maintained in a condition of readiness. The Alemany Pumps were not operated during the year but they were maintained in a condition of readiness.

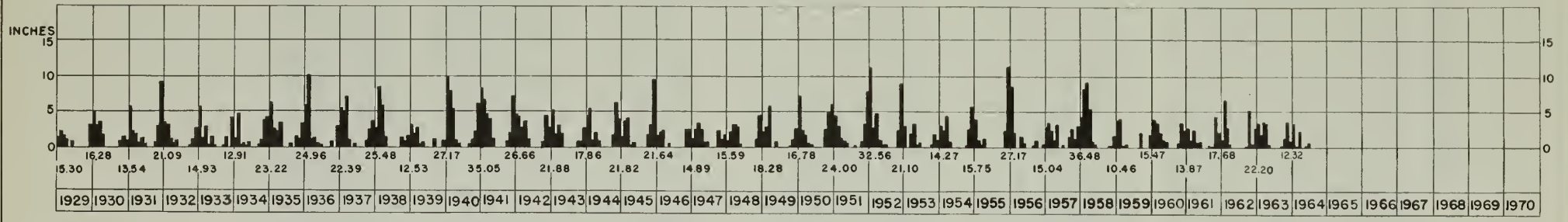
The "O" line of Wells in the Pleasanton Well Field was operated intermittently throughout the year to supply 4.9 million gallons (0.01 million gallons per day) of water for the domestic needs of local consumers.

There was an estimated 16.5 million gallons (0.05 million gallons per day) of water pumped from Alameda Creek at the Sunol Headquarters and 469.8 million gallons (1.3 million gallons per day) drawn from the Pleasanton Well Field for irrigation use by lessees on Water Department lands at those locations in 1963-64.

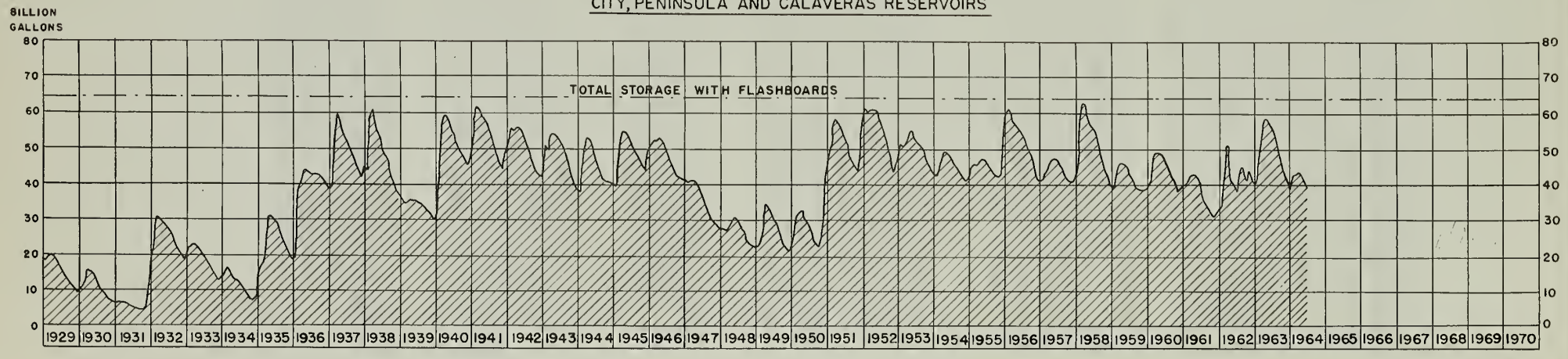
Lake Merced Pumps boosted an average of 43.9 million gallons per day from the Sunset Pipeline, pumping 29.4 million gallons average daily to Sunset Reservoir and 14.5 million gallons average per day to Sutro Reservoir.

SAN FRANCISCO RAINFALL IN INCHES

U.S. WEATHER BUREAU
(NORMAL RAINFALL 20.89)



STORAGE IN BILLION GALLONS
SAN FRANCISCO WATER DEPARTMENT
CITY, PENINSULA AND CALAVERAS RESERVOIRS



MAINTENANCE AND OPERATION:

In the Alameda Division several leaks were repaired on the Pleasanton 30" Pipeline and extensive maintenance was necessary on this line. Considerable maintenance work was accomplished in the Pleasanton Well Fields and one of the "F" line wells was pulled for necessary repair to the shafting and bowls, which was done in Corporation Yard shops, then reinstalled by field forces. Calaveras Pipeline required flushing several times (after each shutdown) and air valves had to be checked. The new blowoff installed in this line near the Alameda Creek siphon materially aided these operations.

In the Peninsula Division a break occurred in the 36" Alameda Pipeline under El Camino Real in San Mateo, on October 11, and a break occurred in Crystal Springs Pipeline No. 1 in the Pacific Gas & Electric Co. yard south of Geneva Avenue, on July 16. Three leaks occurred on the Baden-Merced Branch, and one leak occurred on the San Andreas 30" cross connection.

During the fiscal year considerable difficulty was experienced with high bacteriological counts in samples from San Andreas water. In an effort to control and/or to reduce the bacteriological level in water going to transmission mains, various outlets from the reservoir were used and lines were operated on various rates or shut down completely on occassion, all of which required additional operating procedures to carry out.

Several times during the year water was spilled from Pilarcitos Reservoir to raise the water level at Stone Dam to an elevation which would provide dependable supply to the Coastside County Water District.

Normal maintenance work such as grading and oiling of the Department's existing privately owned roads, weed eradication, trimming of trees, fire guarding, cleaning up and repairing flood damage, changing location or size or replacing of service connections, meter testing, and minor repairs were carried on during the year.

There was again this year an increasing amount of time required in the suburban area in maintaining public relations and in protecting the Department's property and interests through meeting and negotiating with officials of cities, water districts and other local political subdivisions.

WATER RIGHTS

In accordance with the 1916 and subsequent 1936 and other Alameda County Water District Agreements, the Department released water for replenishment of the underground supply of the Niles Cone. The total release entering Niles Cone during the year is tentatively estimated to have been 74.9 million gallons.

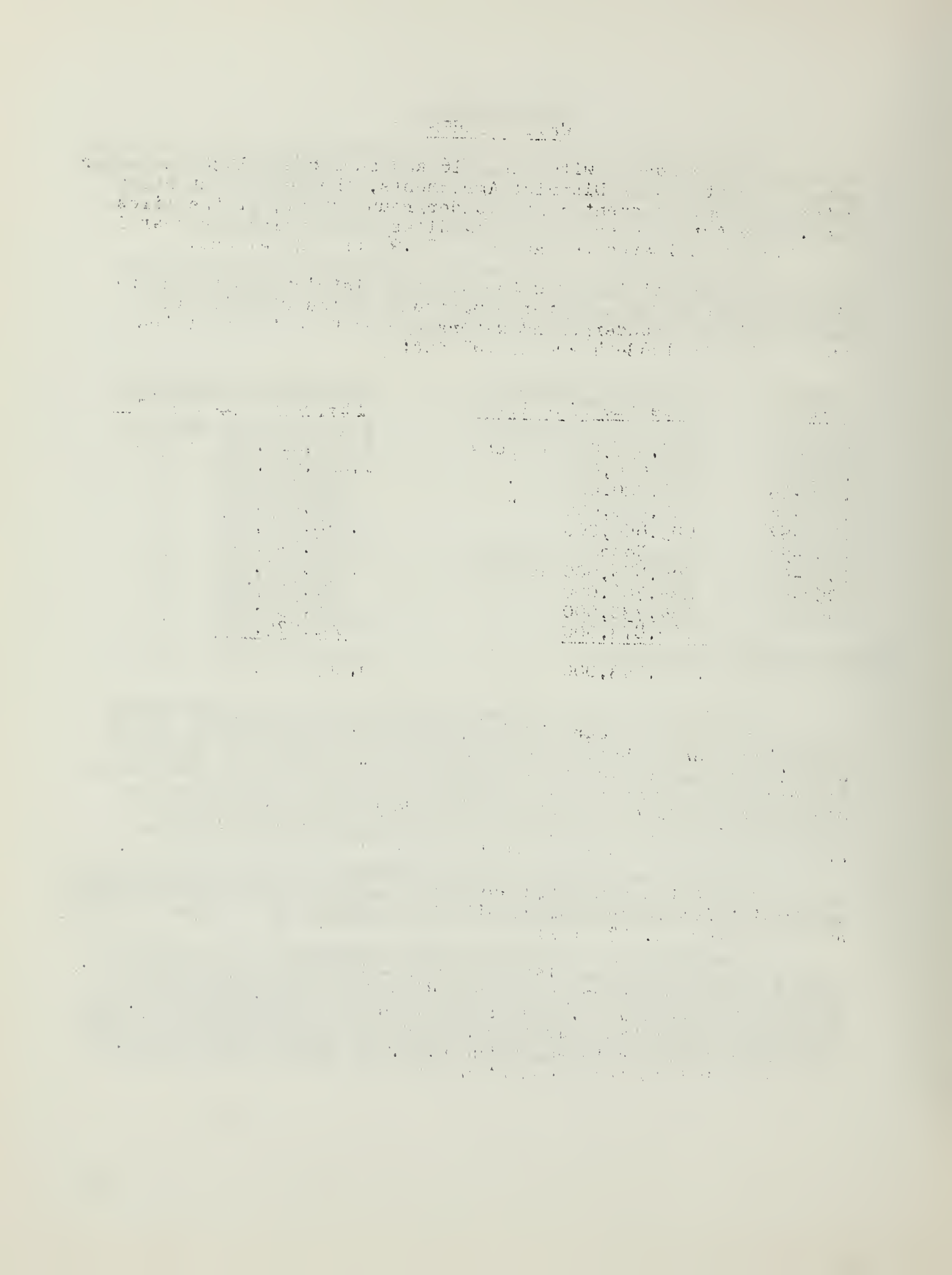
The quantities of water due the District and the quantities released by the Water Department to the District for replenishing the underground waters for each of the past ten years prior to 1963-64 are as follows:

Year	Due the District	Released to District
1952-53	757,955,000 Gallons	1,507,419,000 Gallons
1953-54	501,614,000 "	1,251,654,000 "
1954-55	747,020,000 "	722,995,000 "
1955-56	222,850,000 "	989,290,000 "
1956-57	403,850,000 "	1,538,450,000 "
1957-58	None	410,150,000 "
1958-59	284,585,000 Gallons	1,069,080,000 "
1959-60	239,766,000 "	694,682,000 "
1960-61	164,730,000 "	669,039,000 "
1961-62	160,873,000 "	692,974,000 "
10 Year Total	3,483,243,000 "	9,545,729,000 "

For fiscal years 1962-63 and 1963-64 the United States Geological survey has not yet completed its computation of the quantity of water "Due the District" or "Released to District" since complications in the computation ensue from the fact that South Bay Aqueduct water is flowing down Niles Canyon and is therefore mixed with natural flows and the portion of San Francisco's water releases that also flow down Niles Canyon.

The net accumulated advance release to the Alameda County Water District in accordance with the terms of the 1936 agreement amount to the 32,367 million gallons reported as of June 30, 1962.

The Sheriff of Alameda County continued to use the U. S. Navy's "Camp Shoemaker" as "Santa Rita Rehabilitation Center" during the fiscal year. Water supplied to this institution, as well as to the former Naval Housing Project, Komandorski Village and Camp Parks, was taken by the U. S. Government from the 4.105 acre tract within the Pleasanton Township County Water District.



The withdrawal of ground waters for such purposes varied from a high of 2.05 million gallons to a low of 0.06 million gallons per day on days when they pumped. The pumps operated throughout the year four or five days per week, averaging 727,984 gallons per day for the year.

The high water table for this year in the Pleasanton Well Field, as measured in Well No. W103X, was 101.4 occurring in April 1964. Due to the below normal rainfall, this water level is 7.6 feet lower than the high water level of last year as measured at this well.

During the fiscal year, the tenants on the City's Well Field property near Pleasanton pumped about 470 million gallons of water from City owned wells for irrigation of this leased property.

During this fiscal year the lessees on Department lands bordering Laguna and Alameda Creeks at Sunol used for irrigation about 17 million gallons of water pumped directly from these creeks.

In the City of San Francisco, the City Recreation and Park Department pumped 402 million gallons of water from Lake Merced, Harding Park and Golden Gate Park wells.

The construction of the James H. Turner Dam on San Antonio (La Costa) Creek is on schedule and should be completed by December 1964 in accordance with the stipulation in San Francisco's permit to appropriate additional water.

BAY DIVISION NO. 4 PIPELINE
Wye Connection to Existing Pipeline

WATER QUALITY AND TREATMENT

GENERAL:

Customary procedures for the treatment of the San Francisco Water Supply were employed during the year and proper precautions were taken to insure its safety and purity. Disinfection of all supplies was continuous and water served to consumers complied with the bacteriological standards for drinking water established by the United States Public Health Service.

Dissolved chemical content of the supply sources varies from a soft mountain water to that of a relatively hard ground water. The mountain water constitutes the principal source of supply and requires treatment for the control of its corrosive properties. It is combined in varying proportions with the harder water from other sources and is soft to moderately soft when served to consumers. The water is generally free from tastes and odors and the quality is good for an unfiltered supply derived primarily from surface sources.

LABORATORY:

All analytical work in the fields of biological bacteriology and chemistry, except the necessary field tests, was performed in our laboratory located at Millbrae which has been certified by the State Department of Public Health as an "Approved Water Laboratory for Complete Chemical and Complete Bacteriological Analyses".

Following is a tabulation which enumerates the field and laboratory tests made during the year in connection with water treatment, sanitary control and special investigations:

	1963-64	1962-63
Bacteriological Examinations	12,259	10,002
Microscopical Examinations of Algae	279	248
Electrical Conductivity Measurements	4,276	4,472
Turbidity Measurements	4,347	4,472
Partial Chemical Analyses	2,007	1,526
Fluoride Determinations	4,344	2,444
Color Measurements	1,076	948

	1963-64	1962-63
Dissolved Oxygen Tests	669	642
Leak Origin Analyses	433	490
Complaint Investigations	257	242
Chlorine Residual Determinations	9,224	5,123
Complete Mineral Analyses	5	11
Irrigation Water Analyses	0	0
Radioactivity Assays (Air and Water)	581	78
Miscellaneous Field Tests	2,797	3,450
Miscellaneous Laboratory Tests not otherwise included	12,337	10,395
	54,891	44,543

Due to the number of tests required in making an analysis, the execution of the above examinations actually required the performance of 22,895 chemical, 18,979 bacteriological, and 11,798 physical tests, totaling 53,672 individual tests.

INSPECTIONS:

Periodic sanitary inspections of the watersheds were made to insure the protection of the water supply.

During the year portions of the Bay Crossing No. 3 Pipeline, the Crystal Springs No. 2 Pipeline, the San Andreas Cross-connection Pipeline, and the San Andreas No. 3 Outlet Pipeline were inspected to determine the nature and amount of organic and inorganic deposition, indications of corrosion and/or erosion.

CHLORINATION:

Disinfection of all supplies was continuous throughout the year with no water exposed to contamination from the point of final chlorination to the consumers' services. Seventeen chlorination stations were operated, with Sunol, Crystal Springs No. 1, Crystal Springs No. 2, and University Mound No. 2 in continuous service. Of the remaining stations, Tesla Portal was operated for the 11.5 months during which the Hetch Hetchy Aqueduct was in service, Calaveras was operated for 8.4 months,

Irvington Pump for 5.7 months, San Andreas No. 2 for 0.7 months and San Andreas No. 3 for 11.3 months, College Hill for 10.6 months, Lombard for 0.2 months, Merced Manor for 11.0 months, Stanford Heights for 5.4 months, Summit for 6.2 months, Sunset for 9.2 months, Sutro for 5.7 months, and University Mound No. 1 for 5.5 months. The new hypochlorination stations at Moccasin, Early Intake, and Cherry Power House in the Hetch Hetchy Water System were operated for 9.0 months, as was the one at Pleasanton Well Field. The hypochlorinators at Potrero Heights, Wilde Avenue Reservoir, and at the Watershed Keepers' cottages in the Peninsula Division were in continuous operation throughout the year.

A total of 2,160,944 pounds of chlorine gas and 1,575 pounds of chlorine in the form of liquid sodium hypochlorite was used during the year. The combined total of 2,162,519 pounds is 13.6% over the amount used last year. Tesla Portal in the Coast Range Division accounted for 37.3% of this amount, the Alameda Division for 14.5%, the Peninsula Division for 45.8%, and the City Distribution Division for 2.4%. Chlorine dosages averaged 16.6 pounds per million gallons at the Tesla Station, 19.9 pounds per million gallons at the Calaveras Station, 11.7 pounds per million gallons at the Sunol Station, 6.13 pounds per million gallons at the Irvington Pump Station, 19.1 pounds per million gallons at the Crystal Springs Stations, and 29.8 pounds per million gallons at the San Andreas Stations.

DECHLORINATION:

Dechlorination of the water drawn from San Andreas Reservoir was accomplished by the use of sulfur dioxide and was practiced in conjunction with prior superchlorination. The existing manual solution feed chlorinators at the San Andreas No. 2 Chlorine Station were used for this purpose for 11.3 months of the year. For the remaining 0.7 months, chlorination of the water leaving San Andreas Reservoir was performed at this station, with no subsequent dechlorination being done. Dechlorination was performed on 528.16 million gallons of water and required a total of 103,722 pounds of sulfur dioxide. The dosage averaged 10.7 pounds per million gallons, or 1.28 milligrams per liter. The free chlorine residual in the water after dechlorination was maintained within the range of 0.6 to 1.4 milligrams per liter, and was varied in accordance with the bacteriological quality of the water.

Temporary dechlorination facilities were installed in the Sunset Supply Line - San Andreas Branch Venturi Meter House, utilizing a chlorinator transferred from the inactive San Andreas No. 1 Chlorine Station. This station was operated

from October 21 to May 2 and used 944 pounds of sulfur dioxide to maintain a chlorine residual subsequent to its injection of approximately 1.2 milligrams per liter.

FLUORIDATION:

Fluoridation of practically all water supplied from the Peninsula reservoirs was continuous throughout the year except for brief shutdowns for maintenance, repair and adjustment.

Effective and reliable safety features are provided, and there was no overdosage of fluoride in any of the water served to consumers during the year.

During the past fiscal year, a total of 559,054 pounds of sodium silicofluoride was used to treat 45,665.0 million gallons of water. The average dosage of 12.2 pounds of the compound per million gallons is equal to 0.88 milligrams per liter of available fluoride. This amount, added to the 0.05 milligrams per liter of the natural fluoride content of the water, gave an average total fluoride concentration in the water served to consumers of 0.93 milligrams per liter.

CORROSION CONTROL:

A total of 1,966,429 pounds of lime was used at the Rock River plant in treating 48,406.5 million gallons of water, giving an average dosage of 40.6 pounds per million gallons. The amount used was 10.6% greater than last year's total.

ALGAE CONTROL:

A total of 220,100 pounds of copper sulfate was required during the year for the control of algae in our local storage and impounding reservoirs. This is 34.7% greater than the quantity used last year and 162.6% greater than the past ten years' average. It was necessary to treat Calaveras and Stone Dam Reservoirs two times each, Pilarcitos Reservoir four times, and San Andreas five times; Upper and Lower Crystal Springs Reservoirs and Lake Merced-South were each treated once.

COAGULATION:

A total of 244,860 pounds (22,260 gallons) of liquid alum was used as needed during the rainy season to reduce the turbidity of the water entering Lower Crystal Springs Lake from San Andreas Creek. This is 30.8% of the total used last year.

WATER QUALITY:

The dissolved chemical content of the water served to consumers from the various sources of supply remained substantially the same as the water served last year. The minor changes are due primarily to the differences in proportion of water entering from Calaveras and Hetch Hetchy and not from any significant variations in the chemical content of these sources.

Hetch Hetchy water was flowing into the system at various rates for the full year except for two weeks between December 14, 1963 and January 2, 1964, during which time a new manifold was installed at Tesla Portal. Calaveras water was flowing into the system from July 23, 1963 to January 17, 1964 and from April 16 through the end of the fiscal year. Water from Irvington Pumps was entering the system from the beginning of the fiscal year until July 19, 1963 and pumping was resumed on January 28, 1964 and continued through the balance of the fiscal year. Except for the period of December 15, 1963 through January 2, 1964 during which only Calaveras water was entering the system, the Bay Division Pipelines carried varying mixtures of the above water with corresponding variations in the quality of water delivered to consumers served from these lines.

CROSS-CONNECTIONS:

There are 167 services to consumers who have cross-connections with other sources of supply on their premises and 270 services to fire and water service hydrants on the waterfront. To prevent backflow, which could contaminate the City's water supply, each of these 437 services has double check valve assemblies installed in them. Of the 540 check valve assemblies, two were found to be defective and were replaced or repaired.

TABLES AND CHARTS:

The following tables and charts are self-explanatory.

1963-1964
OPERATION OF CHLORINATION STATIONS

Location		Total Operating Time (months)	Chlorine Used (lbs.)	
Division	Station		Station Total	Division Total
Coast Range H.H.W.S.	Rock River	5.9	104	
	Tesla Portal	11.5	805,723	805,827
Alameda	Calaveras	8.4	290,297	
	Irvington Pump	5.7	5,336	
	Sunol Aqueduct	12.0	17,894	313,527
Peninsula	Crystal Springs #1	12.0	320,288	
	Crystal Springs #2	12.0	355,560	
	San Andreas #2	0.7	9,237	
	San Andreas #3	11.3	305,366	990,451
City Distribution	College Hill	10.6	10,066	
	Lombard	0.2	216	
	Merced Manor	11.0	4,695	
	Stanford Heights	5.4	764	
	Summit	6.2	290	
	Sunset	9.2	8,253	
	Sutro	5.7	719	
	University Mound #1	5.5	947	
	University Mound #2	12.0	25,189	51,139
			Total Chlorine Gas Used	2,160,944
			Plus Total Chlorine as NaOCl	1,575
			Total Chlorine Used	2,162,519

1963-1964

OPERATION OF FLUORIDE STATIONS

STATION	Days Off*	Months Operated	Fluoride Used (lbs.)	Flow (m.g.)	Fluoride Added Na_2SiF_6 lbs./m.g.	Fluoride Added F mg/l	Total Fluor F mg/l
C.S. #1	16	12.0	200,642	16,414.3	12.2	0,88	0.93
C.S. #2	11	12.0	236,962	19,039.6	12.5	0.90	0.95
S.A. #2	26	12.0	121,450	10,211.1	11.9	0.86	0.91
		Total	559,054	45,665.0	12.2	0.88	0.93

*Equivalent number of days fluoridator shut down for mechanical and electrical repairs and adjustments, power interruptions, etc.

OPERATION OF LIME TREATMENT STATION

STATION	Months Operated	Lime Used (lbs.)	Flow (m.g.)	Lime Added lbs./m.g.	Lime Added mg/l
Rock River (H.H.W.S.)	11.5	1,966,429	48,406.5	40.6	4.87

OPERATION OF ALUM TREATMENT STATION

STATION	Alum Used Gallons	Alum Used Lbs.(Dry)	Remarks
San Andreas Creek	22,260	117,900	Operated intermittently as needed During the Months of November, January, and March.

1963-1964

COPPER SULFATE

($CuSO_4$)

RESERVOIR	DATE	AMOUNT $CuSO_4$(lbs.)	STORAGE *(m.g.)	REASON FOR TREATMENT
Calaveras	7-23-63	108,000	29,101	Staurastrum
	4-17-64	24,300	20,513	Eudorina, Mallomonas
Lake Merced-South	10-26-63	3,200	700	General Algal Growth
Stone Dam	8-16-63	50	5	Asterionella, Dynobryon
	9-23-63	50	5	Dynobryon
Upper C.S.	8-16-63	24,850	7,050	Staurastrum
Lower C.S.	5-23-64	11,750	9,654	Dynobryon
San Andreas	7-12-63	9,500	5,776	Ceratium, Dynobryon, Staurastrum
	10-8-63	7,900	3,883	Staurastrum
	1-19-64	7,600	4,830	Synedra
	2-17-64	8,050	5,137	Synedra
	5-28-64	8,450	4,967	Staurastrum
Pilarcitos	7-2-63	1,600	909	Anabaena
	10-14-63	1,700	801	Staurastrum
	4-6-64	1,500	752	Ceratium, Asterionella
	6-15-64	1,600	785	Dynobryon, Staurastrum
	Totals	220,100 lbs.		94,868 Million Gallons

$$\begin{array}{r} 220{,}100 \\ -163{,}350 \\ \hline 56{,}750 \end{array} \qquad \frac{56{,}750 \times 100}{163{,}350} = 34.7\% \text{ increase over previous year}$$

$$\begin{array}{r} 220{,}100 \\ -83{,}810 \\ \hline 136{,}290 \end{array} \qquad \frac{136{,}290 \times 100}{83{,}810} = 162.6\% \text{ over previous 10 year average}$$

* Storage at time of treatment

1963-1964
WATER QUALITY

CRYSTAL SPRINGS PIPELINES

Hardness	Max. 57	Min. 41	Ave. 48 mg/l (2.81 gpg)
Chloride	12	6	9 mg/l
Alkalinity	48	31	36 mg/l
pH	8.1	7.0	7.4
Conductivity	155	116	133 µmhos.
Turbidity	7	0.5	2.0 mg/l
Temperature	72°F.	51°F.	55°F.
Dissolved Oxygen	11.4	4.1	9.4 mg/l (89.0% of Saturation)

SAN ANDREAS PIPELINES

Hardness	Max. 62	Min. 45	Ave. 54 mg/l (3.16 gpg)
Chloride	18	12	15 mg/l
Alkalinity	48	34	39 mg/l
pH	8.0	6.8	7.4
Conductivity	172	136	156 µmhos
Turbidity	14	0.5	3 mg/l
Temperature	67°F.	48°F.	58°F.
Dissolved Oxygen	11.5	5.5	9.6 mg/l (93.7% of Saturation)

BAY CROSSING PIPELINE NO. 1

Hardness	Max.212	Min. 13	Ave. 64 mg/l (3.74 gpg)
Chloride	26	3	7 mg/l
Alkalinity	161	10	54 mg/l
pH	9.4	7.6	8.3
Conductivity	520	42	164 µmhos
Turbidity	6	0.5	1 mg/l
Temperature	66°F.	46°F	55°F.
Dissolved Oxygen	11.6	2.2	9.8 mg/l (92.5% of Saturation)

BAY CROSSING PIPELINE NO. 2

Hardness	Max.111	Min. 12	Ave. 38 mg/l (2.22 gpg)
Chloride	11	3	5 mg/l
Alkalinity	97	10	32 mg/l
pH	9.5	7.0	8.8
Conductivity	270	40	101 µmhos
Turbidity	3	0.5	1 mg/l
Temperature	64°F.	47°F.	55°F.
Dissolved Oxygen	11.4	8.0	9.9 mg/l (93.3% of Saturation)

BAY CROSSING PIPELINE NO. 3

Hardness	Max.113	Min. 12	Ave. 37 mg/l (2.16 gpg)
Chloride	11	2	5 mg/l
Alkalinity	98	9	31 mg/l
pH	9.4	7.8	8.5
Conductivity	265	40	98 µmhos
Turbidity	3	0.5	1 mg/l
Temperature	67°F.	47°F.	56°F.
Dissolved Oxygen	11.6	5.3	9.8 mg/l (93.7% of Saturation)

MONTHLY SUMMARIES OF BACTERIOLOGICAL ANALYSES
SAMPLES COLLECTED FROM THE SAN FRANCISCO DISTRIBUTION SYSTEM
IN ACCORDANCE WITH CERTIFICATION REQUIREMENTS

1963-1964

Month	Coliform Tests					
	Samples Positive (3 or more tubes)			Tubes Positive (10 ml. portions)		
	No. of Samples	Number Positive	Per cent Positive	No. of Tubes	Tubes Positive	Per cent Positive
1963						
July	387	9	2.3	1935	46	2.4
August	407	6	1.5	2035	34	1.7
September	390	57	14.6	1950	290	14.9 *
October	438	0	0	2190	4	0.2
November	375	1	0.3	1875	7	0.4
December	418	0	0	2090	0	0
1964						
January	469	1	0.2	2345	7	0.3
February	432	9	2.1	2160	42	1.9
March	473	27	5.7	2365	147	6.2 **
April	465	3	0.6	2325	22	0.9
May	440	4	0.9	2400	21	0.9
June	474	0	0	2370	0	0

* Contributory Cause: San Andreas Reservoir
**Contributory Cause: Crystal Springs Reservoir

BACTERIOLOGICAL ANALYSES

ANNUAL SUMMARY OF RESULTS

RAW WATERS - SOURCES AND RESERVOIRS

1963-1964

Origin of Sample	Agar Count No. per ml.			Coliform Group 10 ml. portions			Samples		
	Min.	Max.	Median	No. Exam.	No. Pos.	% Pos. Yr.	No. Exam.	No. Pos.	% Pos. Yr.
Moccasin Reservoir	15	>300	>300	220	158	71.8	44	35	79.5
Tesla Portal	1	>300	1	250	70	28.0	50	10	50.0
Calaveras Surface	1	>300	8	260	133	51.2	52	25	48.1
Calaveras Outlet	1	>300	5	205	85	41.5	41	13	31.7
Sunol Filters	1	>300	5	260	187	71.9	52	38	73.1
Pleasanton Well Field	1	>300	1	250	29	11.6	50	3	6.0
Pleasanton Town Well	1	>300	1	240	25	10.4	48	3	6.2
Upper C.S. Surface	1	>300	10	265	165	62.3	53	33	62.3
Lower C.S. Surface	1	300	25	265	175	66.0	53	37	69.8
Lower C.S. Outlet	1	>300	10	920	570	62.0	184	106	57.6
San Andreas Surface	1	>300	15	265	169	63.8	53	36	67.9
San Andreas Outlet	1	>300	25	930	535	57.5	186	103	55.4
Crystal Springs Aq.	1	>300	5	255	208	81.6	51	42	82.4
Pilarcitos Surface	1	>300	10	265	156	58.9	53	32	60.4
Pilarcitos Outlet	1	>300	5	250	146	58.4	50	29	58.0
Stone Dam Surface	5	>300	150	240	213	88.8	48	43	89.6
				M.P.N.					
				Min.	Max.	Median			
Lake Merced North	5	>300	>300	11	1090	109	53	53	100
Lake Merced South**	1	>300	>300	13	5420	79	53	52	98.1
Lake Honda*	1	>300	5	<2	1410	14	24	15	62.6
Laguna Creek	>300	>300	>300	542	>5420	5420	37	37	100
Alameda Creek	2	>300	>300	5	>5420	348	45	44	97.8
San Antonio Creek	200	>300	>300	23	>5420	1720	24	24	100

* Standby purposes only.
** Emergency standby source.
*** Number of samples having 3 or more tubes positive

M.P.N. Most probable number per 100 milliliter.

BACTERIOLOGICAL ANALYSES - ANNUAL SUMMARY OF RESULTS
TREATED WATERS
1963-1964

Origin of Sample	Agar Count No. per ml.			Coliform Group 10 ml. portions			Samples		
	Min.	Max.	Median	No. Exam.	No. Pos.	% Pos. Yr.	No. Exam.	No. Pos.	% Pos. Yr.
Alameda East	1	15	1	255	0	0	51	0	0
Calaveras Pipeline	1	>300	1	205	4	2.0	41	1	2.4
Sunol Town Supply	1	50	1	275	2	0.7	55	0	0
Sunol Aqueduct	1	10	1	265	0	0	53	0	0
Irvington Meter	1	10	1	265	2	0.8	53	0	0
Irvington Pumps	1	4	1	110	0	0	22	0	0
Bay Crossing P.L. #1	1	>300	1	1330	5	0.4	266	1	0.4
Bay Crossing P.L. #2	1	5	1	1325	5	0.4	265	1	0.4
Bay Crossing P.L. #3	1	>300	1	1305	9	0.7	261	0	0
Palo Alto Pipeline	1	20	1	795	5	0.6	159	1	0.6
S.F. Airport North	1	100	1	525	6	1.1	105	2	1.9
S.F. Airport South	1	3	1	415	0	0	83	0	0
Crystal Spgs. P.L. #1	1	100	1	1555	76	4.9	311	6	1.9
Crystal Spgs. P.L. #2	1	>300	1	1570	54	3.4	314	10	3.2
San Andreas P.L. #2	1	>300	1	1570	81	5.2	314	15	4.8
San Andreas P.L. #3	1	>300	1	1390	37	2.7	278	7	2.5
S.A. Millbrae Outlet	1	15	1	735	1	0.1	147	0	0
S.S.L. At Millbrae	1	>300	1	1535	29	1.9	307	6	2.0
San Andreas #2 Baden	1	>300	1	610	0	0	122	0	0
Univ. Md. Inlet #1	1	>300	1	525	30	5.7	105	6	5.7
Univ. Md. Inlet #2	1	>300	1	525	20	3.8	105	3	2.9
Univ. Md. Outlet #1	1	2	1	525	10	1.9	105	2	1.9
Univ. Md. Outlet #2	1	2	1	525	5	0.9	105	1	1.0
Univ. Md. System #1	1	300	1	525	6	1.1	105	1	1.0
Univ. Md. System #2	1	>300	1	515	11	2.1	103	3	2.9
Univ. Md. System #3	1	10	1	445	6	1.3	89	1	1.1
Univ.Md. System #4	1	5	1	525	0	0	105	0	0
Univ. Md. System #5	1	100	1	525	0	0	105	0	0
Univ. Md. System #6	1	10	1	525	1	0.2	105	0	0
College Hill Inlet	1	1	1	460	16	3.5	92	3	3.3
College Hill Outlet	1	125	1	525	10	1.9	105	2	1.9
College Hill Sys. #1	1	300	1	525	20	3.8	105	4	3.8
College Hill Sys. #2	1	5	1	525	22	4.2	105	5	4.8
Sunset Inlet #1	1	5	1	465	11	2.4	93	1	1.1
Sunset Outlet #1	1	5	1	525	0	0	105	0	0
Sunset System #1	1	9	1	525	0	0	105	0	0
Sunset System #2	1	100	1	525	8	1.5	105	1	1.0
Sunset System #3	1	300	1	525	21	4.0	105	5	4.8
Sunset System #4	1	5	1	525	16	3.0	105	3	3.3
Sunset System #5	1	100	1	525	15	2.9	105	3	3.3
Sunset System #6	1	10	1	525	27	5.1	105	5	4.8
Potrero Hts. Tanks	1	10	1	525	3	0.6	105	0	0
Lombard System	1	1	1	525	10	1.9	105	2	1.9
Merced Manor Sys. #1	1	6	1	525	22	4.2	105	4	3.8
Stanford Hts. Sys. #1	1	300	1	525	30	5.7	105	6	5.7
Stanford Hts. Sys. #2	1	300	1	525	24	4.6	105	5	4.8
Sutro System #1	1	50	1	525	23	4.4	105	4	3.8
Sutro System #2	1	300	1	525	1	0.2	105	0	0
Wilde Avenue System	1	150	1	525	29	5.5	105	6	5.7
Summit System	1	25	1	525	2	0.4	105	0	0
Crystal Spgs #1 Dam	1	300	1	580	41	7.1	116	6	5.2
Crystal Spgs #2 Dam	1	300	1	580	20	3.5	116	4	3.4

SAN FRANCISCO WATER DEPARTMENT
MINERAL ANALYSES
Table I

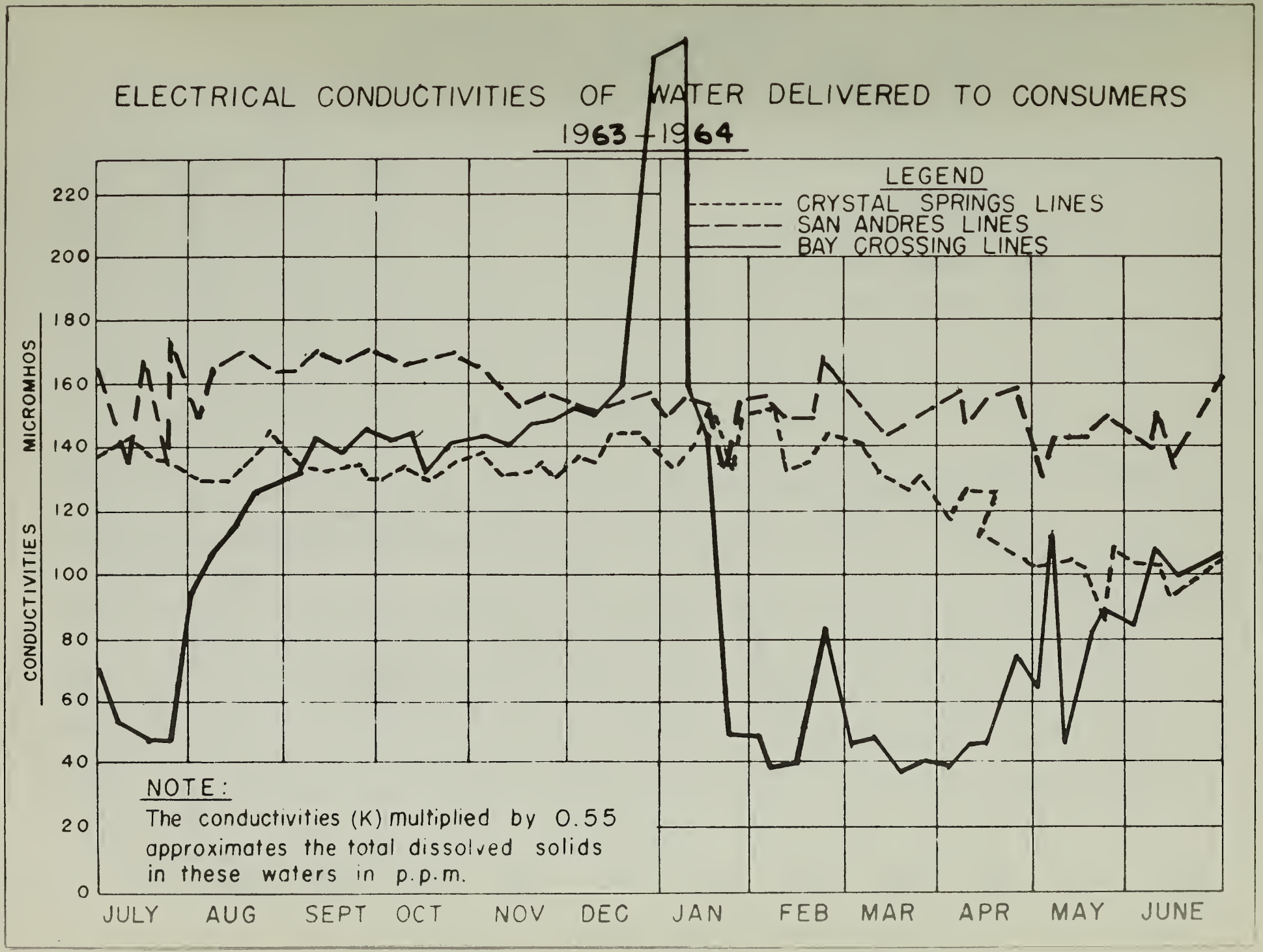
Source	A Hetch Hetchy Reservoir	B Alameda East Portal (treated water)	C Calaveras Pipe Line (treated water)
Date Sampled	6-30-64	6-30-64	6-30-64
MAJOR CHEMICAL CONSTITUENTS	mg/liter	mg/liter	mg/liter
Cations:			
Calcium (Ca^{++})	0.9	5.3	36.3
Magnesium (Mg^{++})	0.4	0.7	6.4
Sodium (Na^{+})	1.0	1.8	9.7
Potassium (K^{+})	0.4	0.4	1.4
Anions:			
Bicarbonate (HCO_3^{-})*	4.8	10.5	126
Carbonate (CO_3^{--})*	<0.01	3.2	0.6
Chloride (Cl^{-})	<0.5	3.0	9.5
Sulfate (SO_4^{--})	<1.0	<1.0	19.7
Fluoride (F^{-})	0.3	0.4	0.4
MINOR, TRACE, AND NONIONIC CONSTITUENTS			
Copper (total as Cu)	0.02	0.02	0.08
Aluminum (total as Al_2O_3)	0.08	0.14	0.02
Iron (total as Fe_2O_3)	0.03	0.03	0.01
Manganese (total as MnO_2)	0.002	0.01	0.03
Silicon (total as SiO_2)	2.0	2.0	3.0
Lead (total as Pb)	<0.005	<0.005	<0.005
Chromium (total as Cr)	<0.001	<0.001	0.001
Arsenic (total as As)	<0.002	<0.002	<0.005
Selenium (total as Se)	<0.005	<0.005	<0.005
Strontium (total as Sr^{++})	<0.2	<0.2	<0.2
Barium (total as Ba)	<0.2	<0.2	<0.2
Cadmium (total as Cd)	<0.002	<0.002	<0.002
Zinc (total as Zn)	0.05	0.02	0.02
Silver (total as Ag)	<0.05	<0.05	<0.05
Ammonia (total as NH_4)	0.01	<0.01	<0.01
Nitrate (NO_3^{-})	0.09	0.09	0.09
Nitrite (NO_2^{-})	<0.001	<0.001	<0.001
Borate (BO_2^{-})	0.05	0.1	0.3
Phosphate (PO_4^{---})	0.03	0.07	0.07
Phenol	<0.001	<0.001	0.001
Oxygen (dissolved as O_2)	9.4	9.0	10.5
Detergent	0.005	0.005	0.005
Chemical Oxygen Demand	0.6	<0.1	<0.1
DERIVED VALUES			
Hardness as $CaCO_3$	4.0	16.0	117
Alkalinity as $CaCO_3$	4.0	14.0	104
Total Solids:			
Residue at 211°C	11.7	32.2	161
PHYSICAL MEASUREMENTS			
Conductivity (micromhos/cm)	9.7	43	257
pH	7.0	9.8	8.0
Turbidity (units)	0.5	1	1
Color (units)	1	1	1
Radioactivity (micromicrocuries per liter)	28	33	18

*Bicarbonate and carbonate are calculated from pH and total alkalinity.

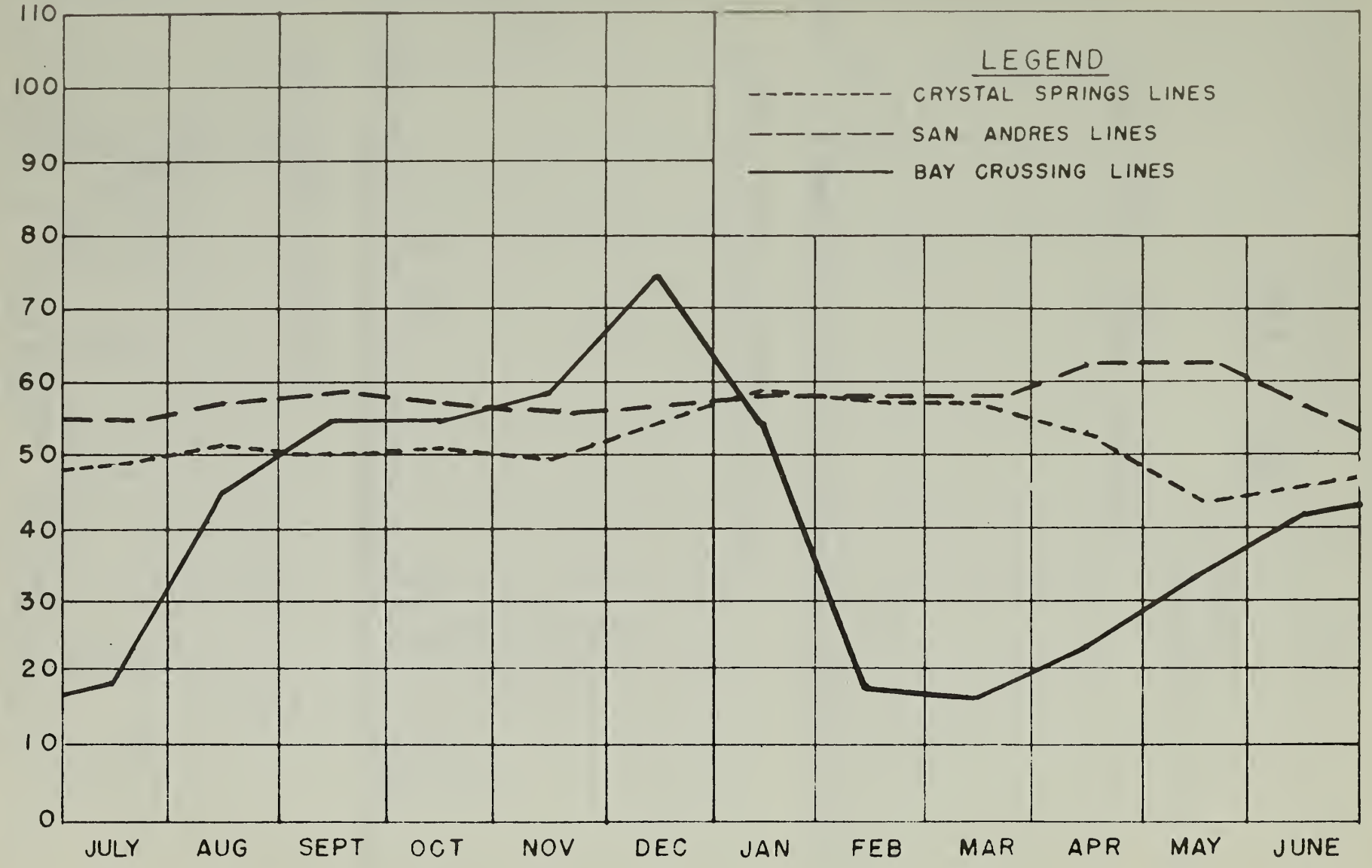
SAN FRANCISCO WATER DEPARTMENT
MINERAL ANALYSES
Table II

Source	A Crystal Springs Lines	B San Andreas Lines
Date Sampled	June 30, 1964	June 30, 1964
MAJOR CHEMICAL CONSTITUENTS	mg/liter	mg/liter
Cations:		
Calcium (Ca^{++})	9.8	14.1
Magnesium (Mg^{++})	2.8	3.2
Sodium (Na^{+})	4.7	7.0
Potassium (K^{+})	0.7	0.7
Anions:		
Bicarbonate (HCO_3^{-})*	34.1	48.7
Carbonate (CO_3^{--})*	0.03	0.07
Chloride (Cl^{-})	8.0	11.0
Sulfate (SO_4^{--})	7.0	8.4
Fluoride (F^{-})	0.4	0.9
MINOR, TRACE, AND NONIONIC CONSTITUENTS		
Copper (total as Cu)	0.01	0.07
Aluminum (total as Al_2O_3)	0.06	0.10
Iron (total as Fe_2O_3)	0.01	0.01
Manganese (total as MnO_2)	0.02	0.003
Silicon (total as SiO_2)	2.6	3.0
Lead (total as Pb)	<0.005	<0.005
Chromium (total as Cr)	<0.001	<0.001
Arsenic (total as As)	<0.002	<0.002
Selenium (total as Se)	<0.005	<0.005
Strontium (total as Sr^{++})	<0.2	<0.2
Barium (total as Ba)	<0.2	<0.2
Cadmium (total as Cd)	<0.002	<0.002
Zinc (total as Zn)	<0.01	0.04
Silver (total as Ag)	<0.05	<0.05
Ammonia (total as NH_4)	<0.01	0.01
Nitrate (NO_3^{-})	0.06	0.03
Nitrite (NO_2^{-})	<0.002	<0.003
Borate (BO_2^{-})	0.1	0.2
Phosphate (PO_4^{-})	<0.001	0.07
Phenol	<0.001	<0.001
Oxygen (dissolved as O_2)	8.7	8.8
Detergent	0.005	0.005
Chemical Oxygen Demand	0.5	<0.1
DERIVED VALUES		
Hardness as $CaCO_3$	36.0	48.0
Alkalinity as $CaCO_3$	28.0	40.0
Total Solids:		
Residue at 211°C	60.9	85.7
PHYSICAL MEASUREMENTS		
Conductivity (micromhos/cm)	94	124
pH	7.2	7.5
Turbidity (units)	0.5	1
Color (units)	0	1
Radioactivity (micromicrocuries per liter)	9	-

*Bicarbonate and carbonate are calculated from pH and total alkalinity.


ELECTRICAL CONDUCTIVITIES OF WATER DELIVERED TO CONSUMERS
1963 - 1964
LEGEND
CRYSTAL SPRINGS LINES
SAN ANDRES LINES
BAY CROSSING LINES
CONDUCTIVITIES MICROMHOS
220
200
180
160
140
120
100
80
60
40
20
0
JULY
AUG
SEPT
OCT
NOV
DEC
JAN
FEB
MAR
APR
MAY
JUNE
NOTE:
The conductivities (K) multiplied by 0.55 approximates the total dissolved solids in these waters in p.p.m.

HARDNESS OF WATER
DELIVERED TO CONSUMERS 1963 — 1964
(MONTHLY AVERAGES — PARTS PER MILLION AS $CACO_3$)



PENINSULA RESERVOIRS

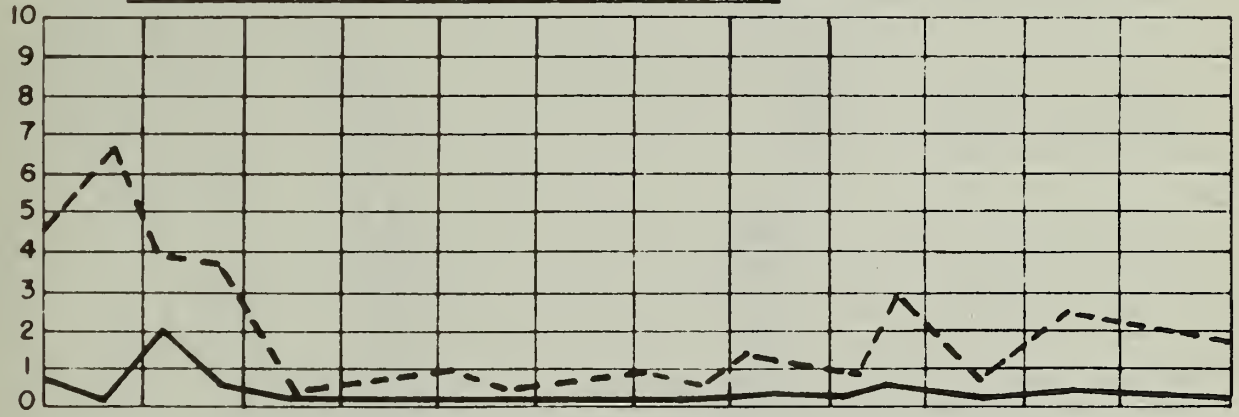
MICROSCOPICAL ORGANISMS C.C. PER CU. METER

1963 — 1964

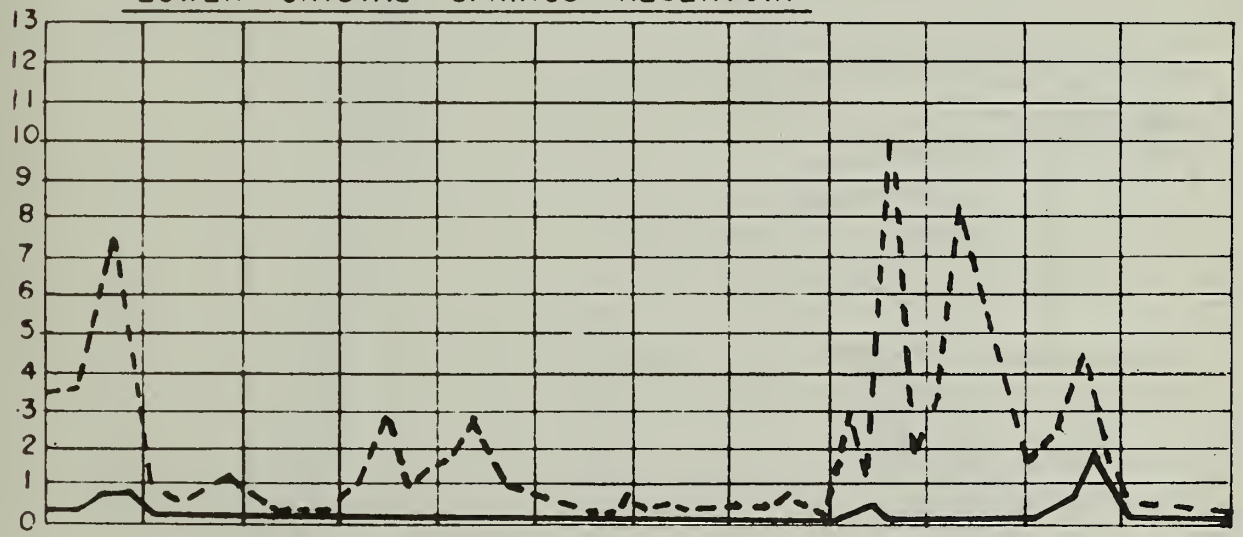
——— ALGAE

– – – – – CRUSTACEA & ROTIFERA

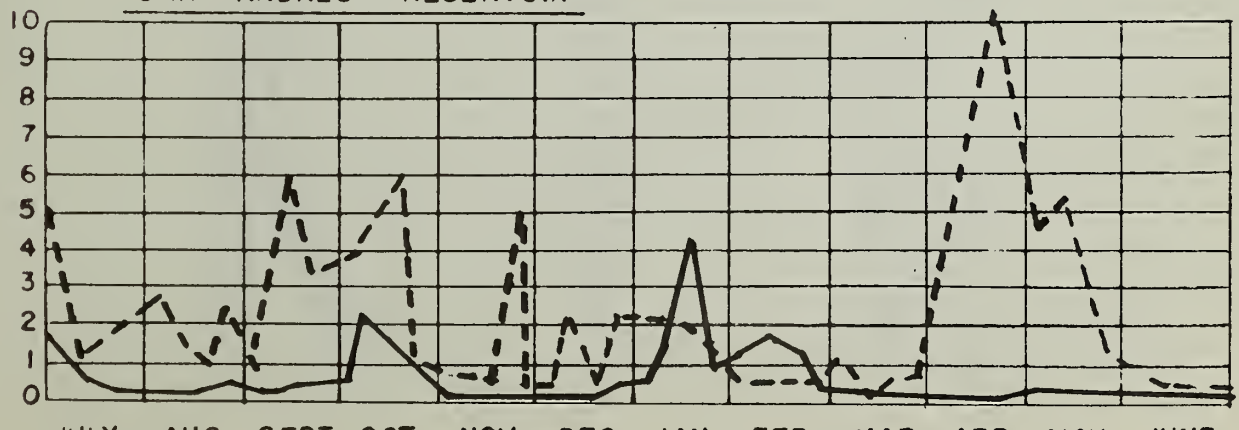
UPPER CRYSTAL SPRINGS RESERVOIR



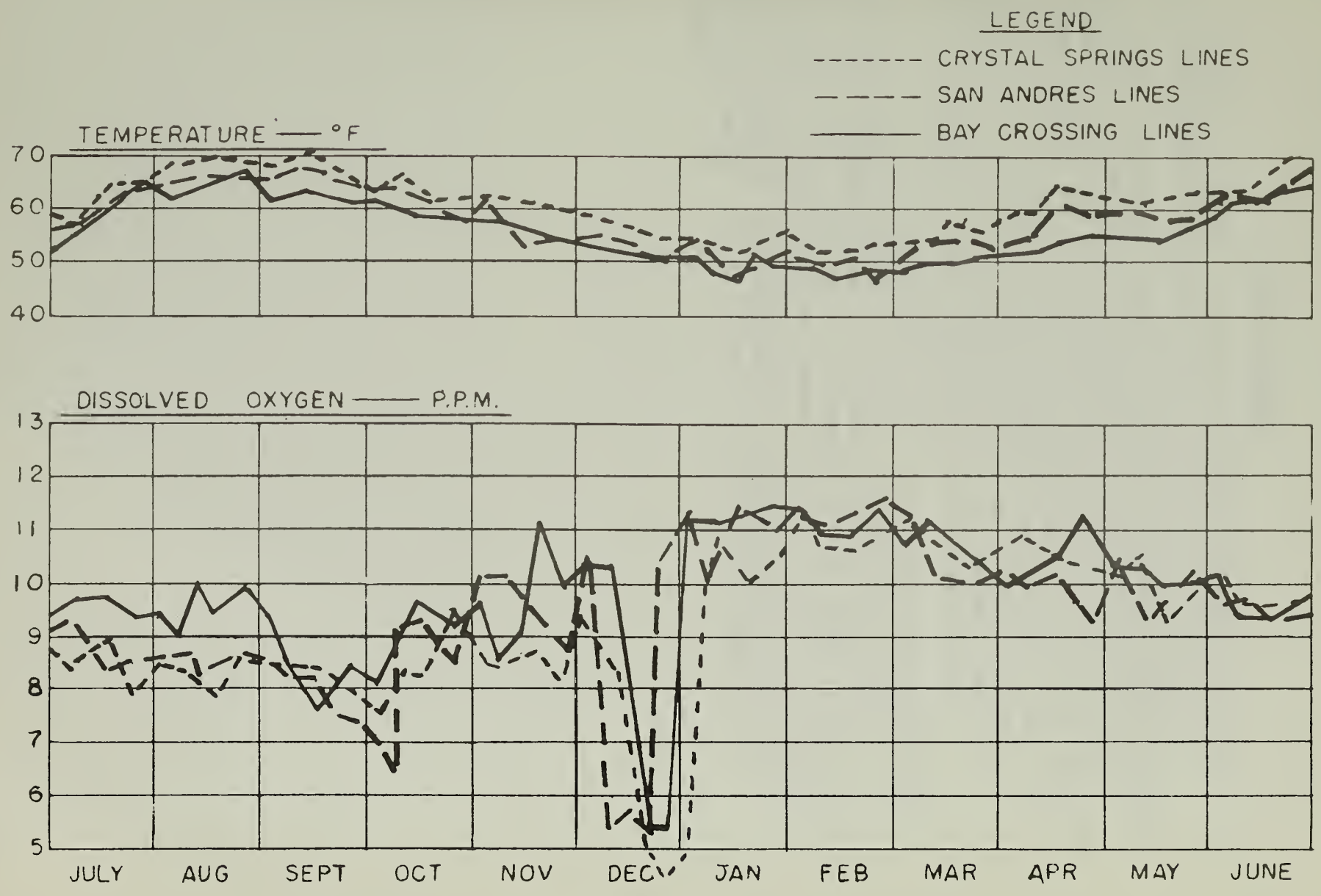
LOWER CRYSTAL SPRINGS RESERVOIR



SAN ANDRES RESERVOIR



TEMPERATURE AND DISSOLVED OXYGEN OF WATER DELIVERED TO CONSUMERS 1963—1964



CIVIL DEFENSE

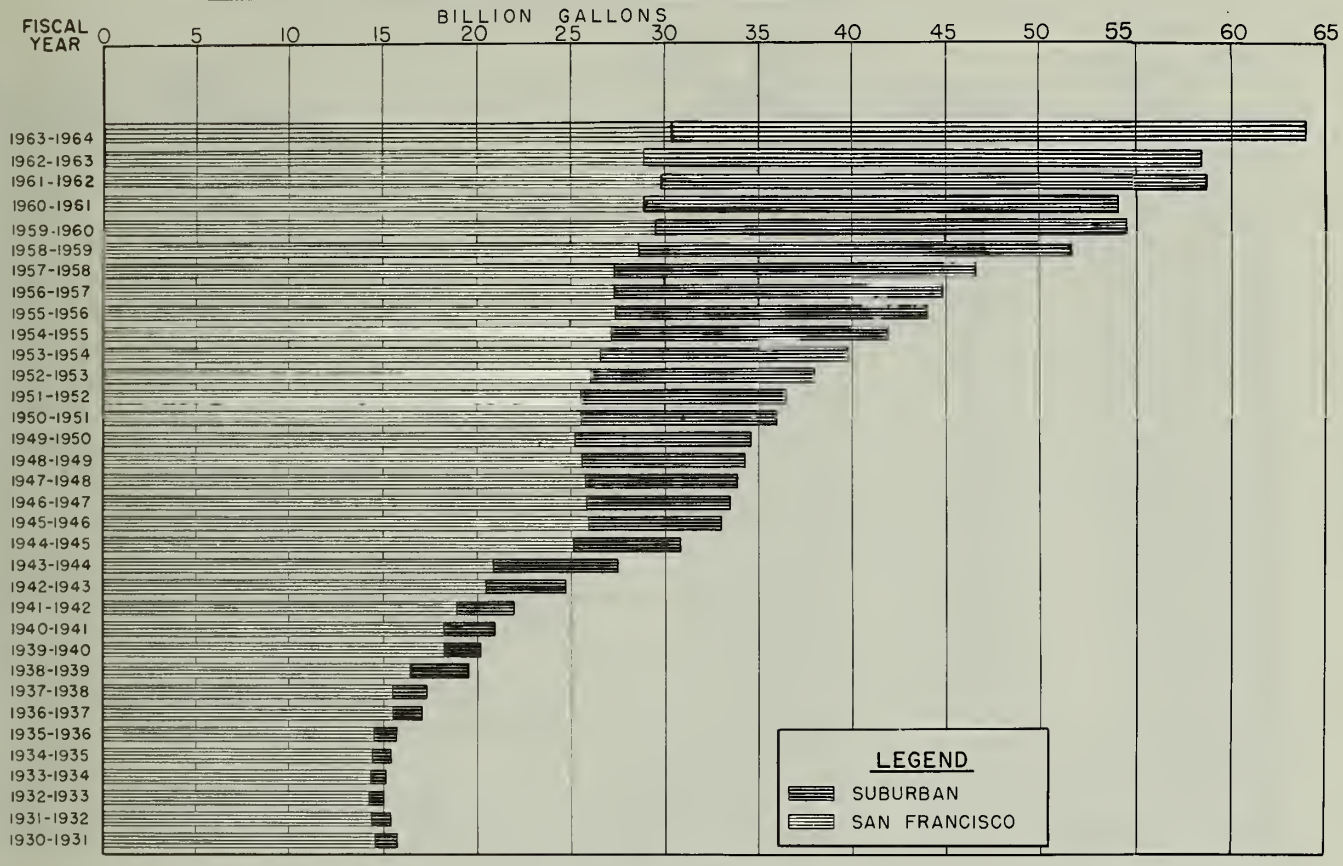
Monthly communications and equipment checks were made with the Department's mobile radiological laboratory.

The radiological survey meters, dosimeters, and dosimeter chargers received last year from the State of California Disaster Office were prepared for distribution to the vehicles of the Water Department. In the event of a nuclear disaster whereby the vehicles are dispersed to pre-selected sites as denoted in the Disaster Manual, the meters will serve to monitor the level of radioactivity in various parts of the water supply system. Emergency procedures to be followed will be largely dependent upon the radiological data transmitted from these areas.

Two radioactivity monitoring instruments are installed in the water supply system to supply a continuous record of the radioactivity in the water in the Bay Crossing and Crystal Springs pipelines. One unit is located at the Pulgas Meter House and the other in the Millbrae Laboratory. In addition to the data provided by these instruments, a total of 581 radioactivity assays were made by the Laboratory on water samples from all parts of the water supply system, rainfall water samples, and air samples.

SAN FRANCISCO WATER DEPARTMENT

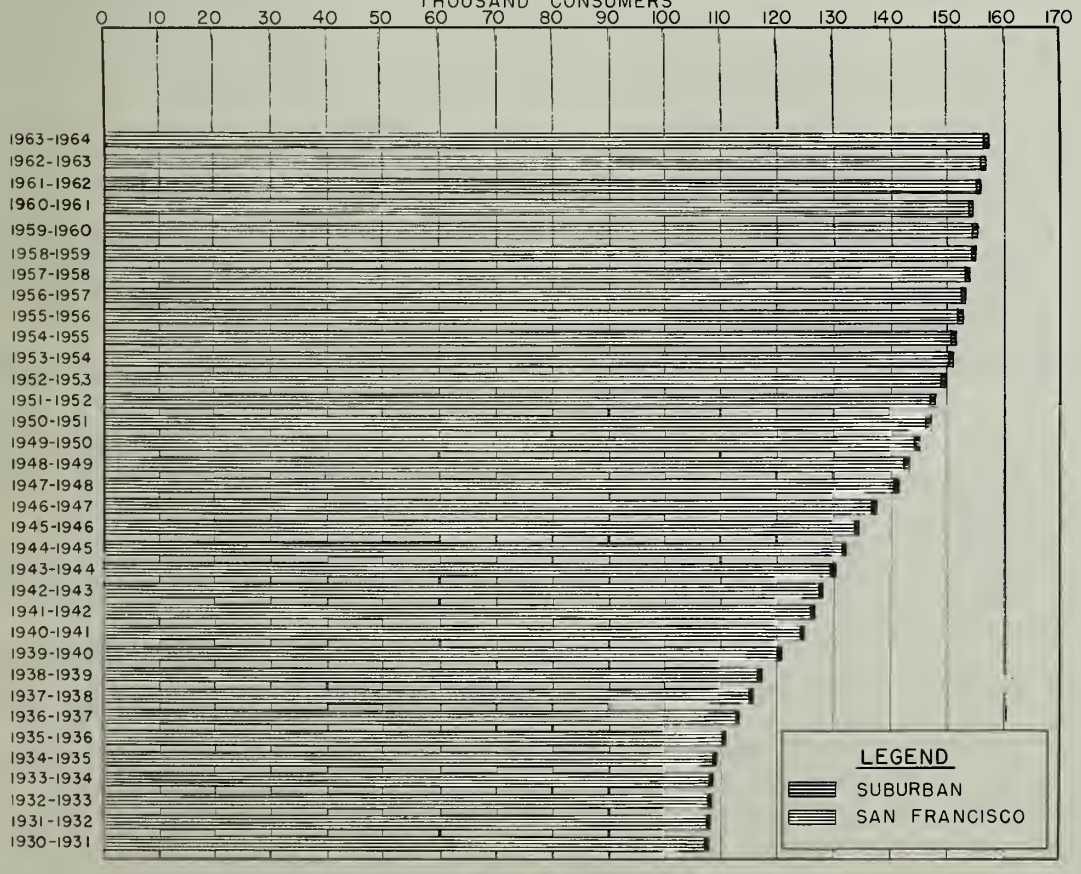
WATER DELIVERED AT CONSUMERS METERS



SAN FRANCISCO WATER DEPARTMENT

NUMBER OF ACTIVE CUSTOMER ACCOUNTS

AS OF JUNE 30



X-1124 F

WATER SOLD IN SUBURBAN AREA
FISCAR YEAR 1963 - 1964

	CUBIC FEET TOTAL FOR YEAR*	M.G.D.	CHARGE TOTAL FOR YEAR
SAN MATEO COUNTY			
MUNICIPAL UTILITIES			
City of Redwood City	305,285,800	6.26	$ 475,921.58
City of Burlingame	208,232,600	4.26	333,663.53
Belmont County Water District	124,242,500	2.54	193,479.39
Town of Hillsborough	115,038,100	2.35	191,830.59
North Coast County Water Dist.	111,639,000	2.28	165,003.80
City of San Bruno	104,856,700	2.14	171,825.73
City of Millbrae	90,477,600	1.85	149,796.82
Ravenswood Water District	86,565,300	1.77	136,978.85
Menlo Park Municipal Water Dist.	84,586,300	1.73	137,900.33
Dimond Public Utility District	14,841,300	0.30	27,331.12
Coastside County Water Dist.	11,102,100	0.23	20,175.59
Brisbane County Water District	10,639,700	0.22	20,923.67
City of Daly City	6,264,900	0.13	16,842.02
Westborough County Water Dist.	5,435,600	0.11	11,212.40
Guadalupe Valley Muni.Impr.Dist.	4,499,600	0.09	10,639.57
Palomar Park County Water Dist.	2,985,000	0.06	6,527.77
Estero Muni. Impr. Dist.	704,600	0.01	2,139.61
Skyline County Water Dist.	488,000	0.01	2,219.55
Cordilleras Mutual Water Assoc.	340,300	0.01	1,012.55
Airport	51,635,000	1.05	93,877.95
TOTAL MUNICIPAL UTILITIES	1,340,860,000	27.40	$2,169,302.42
Other Water Sold	1,482,421,400	30.30	2,206,972.74
TOTAL SAN MATEO COUNTY	2,823,281,400	57.70	$4,376,275.16
SANTA CLARA COUNTY			
MUNICIPAL UTILITIES			
City of Palo Alto	585,630,400	11.97	$ 895,477.11
City of Sunnyvale	261,086,800	5.33	407,960.18
City of Mountain View	105,520,500	2.16	173,481.88
Milpitas County Water Dist.	100,835,700	2.06	159,057.02
Purissima Hills Co.Water Dist.	19,674,800	0.40	33,599.71
TOTAL MUNICIPAL UTILITIES	1,072,748,200	21.92	$1,669,575.90
Moffett Field	62,363,700	1.28	96,881.51
Other Water Sold	14,049,600	0.29	29,980.05
TOTAL SANTA CLARA COUNTY	1,149,161,500	23.49	$1,796,437.46
ALAMEDA COUNTY			
MUNICIPAL UTILITIES			
Hayward Muni. Water System	425,581,400	8.70	$ 643,437.61
Alameda County Water District	66,904,200	1.36	123,195.98
TOTAL MUNICIPAL UTILITIES	492,485,600	10.06	$ 766,633.59
Other Water Sold	67,308,800	1.38	123,274.01
TOTAL ALAMEDA COUNTY	559,794,400	11.44	$ 889,907.60
TOTAL WATER SOLD SUBURBAN AREA	4,532,237,300	92.63	$7,062,620.22

*These quantities are measured by the consumers' meters and in a normal year about 10% must be added to them in order to determine the quantities of water required to be produced and released for consumption in each case. This is true for all quantities of water shown in this "Distribution and Consumption" section of the Annual Report.

DISTRIBUTION AND CONSUMPTION

GENERAL:

Within the City of San Francisco the Water Department distributes and delivers water directly to its many consumers. Outside of San Francisco customers buying water from the Department are generally districts or cities which take delivery at the transmission mains, with distribution of the water to consumers beyond the point of delivery being through the customer's facilities. However, the Department distributes water in Garden Village in the northern part of San Mateo County and in Sunol, Alameda County, both being obligations of long standing.

RESERVOIRS AND TANKS:

During the period July 17 to 31, 1963, Lombard Reservoir was taken out of service following the installation of new regulators at Green and Hyde Streets between the Sutro and Lombard Systems. Following modification of the regulators during August and September, the reservoir was again taken out of service and drained, starting on October 3, 1963, for the purpose of refurbishing and installation of a new roof under contract. At the end of the fiscal year, the reservoir was still out of service, however, only a few days' work remained and it was anticipated that it would be restored to service on or about July 9, 1964.

The East Basin of Sutro Reservoir was isolated and taken out of service on December 17, 1963, for the purpose of cleaning and determining the extent of repairs needed to correct minor leakage. The basin was completely drained by February 18, 1964, at which time a cleaning and repair operation was started.

FEEDER MAINS:

With the growth and advancing age of the system, maintenance requirements are increasing annually. Whereas during fiscal year 1962-63 an average of slightly over five "leak crews" were required to handle service repairs, the workload has increased to where the average is now slightly less than six crews per normal work day and is never less than four crews per day. During periods of heavy workload which occur many times a year due to greatly increased numbers of leaks brought about by such causes as earth tremors and sudden fluctuations in main pressure and velocity, as many as 13 crews have been assigned to make needed repairs in order to reduce property damage and liability claims. In addition to these normal day time requirements, two "standby" crews were maintained to handle

off-hour emergencies until April 1st when the number was reduced to one due to lack of overtime funds.

PIPE SYSTEM:

Routine extensions were made of 4, 6 and 8-inch cast iron mains during the year, both under contracts and by the forces of the Department.

Again this year the program for replacing inadequate small mains with larger ones was continued. This work was closely coordinated with the street reconstruction and resurfacing program of the Department of Public Works.

Of the 69,304 feet of pipe laid in the City during the year, 40,249 feet were 6-inch and 8-inch which amounts to 58.1% of the total. There were 19,421 feet of 4-inch and smaller pipe in the City Distribution system removed or abandoned, most of it being replaced with 6 and 8-inch cast iron pipe.

Pipe tables showing lengths of various sized pipe laid, removed or abandoned, and totals in the City system together with a record of the various types and sizes of valves, are to be found in the Appendix.

PUMP STATIONS:

All pumping stations in the City, which are in current use, operated without any serious trouble.

SERVICES AND METERS:

Within the San Francisco City Distribution Division there were 1,189 orders issued for new services during the fiscal year and, in addition, there were 2,929 orders for renewal of service issued resulting from inspections which disclosed an inadequate supply of water. In addition to the above, 1,269 services were replaced which were found to be in bad condition by the City Distribution Division. There was a total of 4,293 services renewed during the year. On June 30, 1963, there were 157,395 metered services plus 1,257 sprinkler installations in use. At the end of the year there were 160,821 meters in service in San Francisco, including those temporarily shut off.

Forty-five new suburban services were installed during the year and meters were installed thereon ranging in size from 5/8-inch to 10-inch. Forty-nine services were discontinued. The net change was a decrease of four suburban services, leav-

ing a total of 684 as of June 30, 1964. On that date there were 938 meters in service in the suburban area, including those temporarily shut off.

On June 30, 1964, there were 677 active accounts in the suburban area and 156,525 in San Francisco. These do not include temporarily shut off services which number seven in the suburban area and 2,126 in San Francisco, making a total of 2,133. The total number of accounts in the system on June 30, 1964 was 159,335.

The District Servicemen made over 91,216 calls during the year. These calls were for the purpose of turning on or shutting off water and reading meters for closing bills, inspection of usage, investigation of water supply, supplying water to ships and carrying out orders originating from the Collection Department.

All meter readings continue to be audited and, where any of the readings appear to be at variance with the usage normally expected, billing is usually held up pending an inspection by a District Water Serviceman. This procedure continues to find favor with our customers who have larger than normal usage, for they appreciate our interest in checking on the larger usage and, where leaks are found, they can make immediate repairs, thereby arresting further large billing due to leakage. This practice also locates meters that fail to properly register the water consumed.

Tables "A" through "F" following relate to services and meters in San Francisco and Suburban areas as indicated:

TABLE "A"
NEW DOMESTIC SERVICES*

SAN FRANCISCO

Service Size	1959-60°	1960-61°	1961-62	1962-63	1963-64
3/4"	424	423	362	463	381
1"	646	552	371	470	517
1½"	94	115	94	120	112
2"	84	57	81	122	102
3"	18	15	24	12	22
4"	7	11	55	38	20
6"	6	15	19	5	6
8"	-	-	16	3	3
12"	-	-	-	1	-
Total	1,279	1,188	1,022	1,234	1,163
%3/4"	33.2	35.6	35.4	37.5	32.8
%1"	50.5	46.5	36.3	38.1	44.5

*Not including Fire Sprinkler Services.
°Revised estimates based on additional and more thorough research of files and records. Figures for 1959-60 and 1960-61 are in variance with those shown in previous reports.

SUBURBAN

5/8"	16	12	9	12	7
3/4"	6	10	11	3	5
1"	4	5	0	1	6
1½"	4	1	0	1	1
2"	5	5	5	4	10
Larger than 2"	9	2	5	9	16
Total	28	35	30	23	45
Additional Services					
Enlarged	9	2	5	7	4
Reduced	2	1	0	0	0
Home(Removed)	39	6	34	53	21

TABLE "B"

METERS SET

SAN FRANCISCO

Meter Size	1959-60	1960-61	1961-62	1962-63	1963-64
5/8"	1,068	999	1,046	863	1,175
3/4"	406	424	130	275	125
1"	239	184	135	165	183
1½"	87	78	68	107	108
2"	233	112	191	211	203
3"	-	-	-	-	-
4"	-	-	-	-	-
6"	1	2	-	2	-
8"	1	-	-	1	1
Total	2,035	1,799	1,570	1,624	1,795
%5/8"	52.5	55.5	66.6	53.1	66.5
%3/4"	20.0	23.6	8.3	16.9	7.0
%1"	11.7	10.2	8.6	10.2	10.2
%1½"	4.3	4.3	4.3	6.6	6.0
%2"	11.4	6.2	12.2	13.0	11.3

SUBURBAN

5/8"	16	12	13	12	7
3/4"	6	10	2	4	5
1"	4	5	1	3	6
1½"	4	1	4	1	1
2"	15	5	4	8	24
4"	-	-	2	1	8
6"	4	7	8	4	11
8"	10	3	2	6	12
10"	-	-	6	3	3
12"	1	-	1	-	-
16"	3	-	2	-	-
Total	63	43	45	42	77

TABLE "C"

METER SET CHANGES*

SAN FRANCISCO

Meter Size	1959-60	1960-61	1961-62	1962-63	1963-64
5/8"	4,026	3,817	4,215	4,044	4,549
3/4"	183	412	912	821	661
1"	132	169	325	312	339
1½"	108	93	167	114	150
2"	149	163	187	173	221
Total	4,598	4,654	5,806	5,464	5,920
% 5/8"	87.6	82.0	72.6	74.0	76.8
% 3/4"	4.0	8.9	15.7	15.0	11.2
% 1"	2.9	3.6	5.6	5.7	5.7

*For all causes, but mainly for "no goes."

TABLE "D"

METERS HOME*

SAN FRANCISCO

Meter Size	1959-60	1960-61	1961-62	1962-63	1963-64
5/8"	1,317	969	623	751	1,185
3/4"	40	18	14	21	75
1"	43	34	23	28	42
1½"	45	32	20	27	24
2"	106	34	44	85	70
3"	2	-	-	-	-
4"	1	-	-	-	-
Total	1,553	1,087	724	912	1,396
% 5/8"	84.8	89.1	86.0	82.3	84.9
% 3/4"	2.6	1.7	1.9	2.3	5.4
% 1"	2.8	3.1	3.2	3.1	3.0

*Meter brought to the shop and not replaced.

TABLE "E"

FIRE SPRINKLER SERVICES INSTALLED

SAN FRANCISCO

Service Size	1959-60	1960-61	1961-62	1962-63	1963-64
1"	-	-	-	2	1
1½"	-	-	-	1	6
2"	-	1	6	15	31
3"	3	1	2	-	15
4"	13	25	41	59	48
6"	13	25	13	24	34
8"	18	12	14	12	14
10"	-	-	-	-	2
12"	-	1	-	-	-
Total	47	65	76	113	151

TABLE "F"

SERVICE RENEWALS

SAN FRANCISCO

Service Size	1959-60	1960-61	1961-62	1962-63	1963-64
3/4"	1,943	2,482	1,977	2,604	2,299
1"	840	1,055	1,253	1,304	1,795
1½"	125	95	126	113	116
2"	40	54	37	56	73
3"	2	5	3	7	9
4"	-	1	-	1	-
6"	-	2	-	-	1
Total	2,950	3,694	3,396	4,085	4,293
% 3/4"	65.9	67.2	58.2	63.7	53.6
% 1"	28.5	28.6	36.9	31.9	41.8

MAINTENANCE AND OPERATION:

A planned program of gate valve inspection and repair was inaugurated in July 1960. This continuing program will insure operable valves, thereby reducing field costs and the

Department's liability in damage claims and also will insure reliable valve operation during emergencies such as fires and earthquakes. Under the original program, a total of 4,902 gate valves and stopcocks were inspected. In connection with the district flushing program during this past year a total of 1,266 valves were inspected.

As a part of the program to improve the quality of the water and to forestall a possible source of contamination of the water supply, a program was initiated, in August 1960, of providing surface discharges for blowoff pipes in cases where they formerly discharged directly to the sewers or sewer manholes. There were more than 411 blowoffs from 2" to 16" connected to sewers or sewer manholes. To date, 136 of the blowoffs have been converted.

A planned program of flushing distribution mains on an areawide basis to remove sedimentation and products of corrosion, in order to improve the quality of water delivered to consumers, was initiated during fiscal year 1962-63. This continuing program, as currently scheduled, will result in mains being thoroughly flushed about every five years. During fiscal year 1963-64, a total of 735,500 feet of mains of various sizes up to 30-inch diameter, inclusive, were flushed. In addition to area flushing, 242 individual spot flushing operations were carried out. 131 of these were regular monthly flushings carried out to prevent the accumulation of sediment and 111 operations were the result of dirty water complaints.

The various shops at the Corporation Yard continued with routine maintenance and repair work and, in addition to this, the facilities and personnel of the shops were available at all times for emergency work throughout the system. During the year this service has saved much time and expense on numerous occasions when equipment and facilities failed and the making of emergency repairs was necessary.

All maintenance and repair of the Department's various automobiles, trucks and equipment used within the City was carried out in these shops. Body and fender work, major repair work, and painting of vehicles was performed for all divisions of the Department.

The Yard Office at 1990 Newcomb Avenue again carried out a variety of assignments involving the handling and control of materials and supplies, tools and equipment, timekeeping, cost analysis and other accounting matters, along with the processing of orders relating to the operation, maintenance and construction of the City Distribution System.

The Meter Shop continued making repairs, rebuilding and testing various sizes and types of meters used to measure the consumer's use of water. During the year, 5,920 meters in service were replaced for all causes, but mainly because of under registration. All meters are tested for accuracy before being installed or reinstalled, and in many cases are rebuilt or repaired before being tested.

Leak surveys were conducted on 190 miles of water mains in 11 districts within San Francisco. 130 leaks were located and repaired through which about 734,000 gallons of water were lost each day. Checks were made on large industrial consumers to detect unauthorized use of unmetered water and all commercial and industrial meters over three inches in diameter were tested.

COMPLAINTS:

Tables No. 20, 21 and 22 in the Appendix give a comparison of the different types of complaints and inquiries.

Special supply inspections made during the year totaled 4,631. Of the total inspections, 252 were made prior to street construction of water main replacement projects. Service installations were made at that time, where found to be necessary, to avoid later reopening of completed street work.

Large bills continue to account for many complaints. Of the consumers' complaints of poor supply, one was a false report and in 72 investigations it was found to be the consumer's responsibility, their house pipe and/or valve being the cause of the trouble. The Department's service, main or a temporary shutdown accounted for the balance of 21 complaints.

Further progress was made during the year in the program for replacing seriously small mains with larger mains, thus tending to reduce the number of "poor supply" complaints which originate because of inadequate size of mains.

The Department has continued its policy of giving aid to our resale customers in the suburban areas in their investigation of water quality complaints.

CONSUMPTION:

Within the limits of San Francisco the total registration through the customers' meters was 4,015.5 million cubic feet (30,116.1 million gallons) which includes 277.5 million cubic feet (2,081.2 million gallons) used by Municipal

non-pay accounts. This total, averaging 82.3 million gallons per day, is 3.1 million gallons per day more than registered the previous fiscal year.

In the suburban area the total registration through customers' meters was 4,532.2 million cubic feet (33,991.8 million gallons) which includes 102.7 million cubic feet (770.0 million gallons) used by San Francisco Municipal non-pay accounts. This total, averaging 92.9 million gallons per day, is 11.7 million gallons per day more than registered the previous year.

The total system registered consumption of 8,547.7 million cubic feet (64,107.9 million gallons) averaged 175.2 million gallons per day, an increase of 724.9 million cubic feet (5,593.4 million gallons), or 14.9 million gallons per day, representing an increase of 9.3% as compared to the previous year.

San Francisco consumers used 47.0% and Suburban consumers used 53.0% of the total metered quantity during 1963-64. San Francisco consumers are using a smaller percentage of total consumption throughout the system each year. Last year they used 50.6%.

Included in the foregoing is water delivered to Municipal Utilities and Water Districts in the Suburban area, taking water for resale in an amount of 2,906.1 million cubic feet (21,795.8 million gallons), averaging 59.6 million gallons per day. Water delivered to private utilities in the same area totaled 1,330.5 million cubic feet (9,978.8 million gallons), averaging 27.3 million gallons per day.

The following table shows the amount of water withdrawn by consumers (metered delivery) together with the quantities provided from sources to supply these deliveries (consumption). The difference between the two sets of figures represents the system losses under registry of meters and non-metered uses which are explained in the footnotes of the table.

DELIVERIES AND CONSUMPTION
FROM
SAN FRANCISCO WATER DEPARTMENT SOURCES
FISCAL YEAR 1963-64

No.	Area, Utility or District	Metered Cu.Ft. Year	Delivery MGD	Consumption (1) MGD	Ac.Ft. Year
	San Mateo County				
1	Bayshore City (Dimond Utility District)	14,841,300	0.30	0.31	352
2	Brisbane County Water Dist.	10,639,700	0.22	0.23	252
41	Guadalupe Valley Muni. Impr. District	4,499,600	0.09	0.09	107
3	Daly City	6,264,900	0.13	0.13	148
4	Colma (Broadmoore, Calif. Water Serv. Co.)	28,116,400	0.57	0.59	666
5	South San Francisco (Calif.Water Serv.Co.)	229,824,200	4.70	4.85	5,445
6	North Coast Co. Water Dist.	111,639,000	2.28	2.35	2,645
7	Coastside Co. Water Dist.	11,102,100	0.23	0.24	263
8	San Bruno	104,856,700	2.14	2.21	2,484
9	S. F. International Airport Sold 51,635,000 Cu.Ft. S.F. Use 8,989,800 " "(2)	60,624,800	1.24	1.28	1,436
10	Millbrae	90,477,600	1.85	1.91	2,144
11	Burlingame	208,232,600	4.26	4.40	4,934
12	Hillsborough	115,038,100	2.35	2.43	2,726
13	Crystal Springs Golf Club (2)	9,069,900	0.19	0.20	215
14	San Mateo (Calif. Water Serv. Co.)	487,635,300	9.97	10.29	11,554
15	Belmont County Water Dist.	124,242,500	2.54	2.62	2,944
16	San Carlos (Calif. Water Serv. Co.)	157,248,900	3.21	3.31	3,726

DELIVERIES AND CONSUMPTION
FROM
SAN FRANCISCO WATER DEPARTMENT SOURCES
FISCAL YEAR 1963-64

(continued)

No.	Area, Utility or District	Metered Cu.Ft. Year	Delivery MGD	Consumption (1) MGD	Consumption (1) Ac.Ft. Year
	San Mateo County (Cont'd)				
44	Westborough Co. Water Dist.	5,435,600	0.11	0.11	128
17	Redwood City	306,285,800	6.26	6.46	7,257
	Redwood City (Calif. Water Serv. Co.)	22,672,600	0.46	0.47	537
	Cordilleras Mut'l Water	340,300	0.01	0.01	8
	Palomar Pk. Co. Water Dist.	2,985,000	0.06	0.06	71
18	Woodside (Calif. Water Serv. Co.)	68,333,700	1.40	1.44	1,619
19	To Bear Gulch District (Calif. Water Serv. Co.)	83,955,300	1.72	1.78	1,989
20	Menlo Park Muni. Water Dist.	84,586,300	1.73	1.79	2,004
	Menlo Park (Calif. Water Serv. Co.)	227,746,700	4.65	4.80	5,396
	Friendly Acres (Clyde Henry)	24,983,500	0.51	0.53	592
21	Ravenswood Water Dist.	86,565,300	1.77	1.83	2,051
40	Skyline County Water Dist.	488,000	0.01	0.01	12
43	Estero Municipal Improvement Dist.	704,600	0.01	0.01	17
22	City of San Francisco				
	County Jail (2)	17,431,900	0.36	0.37	413
	Public Welfare (2)	705,800	0.01	0.01	16
	Hassler Health Home (2)	1,865,700	0.04	0.04	44
	Other Water delivered in San Mateo Co.	151,904,800	3.10	3.20	3,599
	Total for San Mateo Co.	2,861,344,500	58.48	60.36	67,794
	Santa Clara County				
23	Palo Alto	585,630,400	11.97	12.35	13,875

DELIVERIES AND CONSUMPTION
FROM
SAN FRANCISCO WATER DEPARTMENT SOURCES
FISCAL YEAR 1963-64

(continued)

No.	Area, Utility or District	Metered Cu.Ft. Year	Delivery MGD	Consumption (1) MGD	Ac.Ft. Year
	Santa Clara County (Cont'd)				
24	Purissima Hills Co. Water Dist.	19,674,800	0.40	0.41	466
25	Mountain View	105,520,500	2.16	2.23	2,500
26	Moffett Field	62,363,700	1.28	1.32	1,478
27	Sunnyvale	261,086,800	5.33	5.50	6,186
28	Agnew State Hospital	466,000	0.01	0.01	11
29	Milpitas Co. Water Dist.	100,835,700	2.06	2.13	2,389
30	Other Water delivered in Santa Clara County	13,583,600	0.28	0.29	322
	Total for Santa Clara Co.	1,149,161,500	23.49	24.24	27,227
	Alameda County				
31	Alameda County Water Dist.	66,904,200	1.36	1.41	1,585
32	Newark (various consumers)	21,706,500	0.44	0.46	514
33	Hayward Muni. Water System	425,581,400	8.70	8.98	10,083
42	Atomic Energy Commission Livermore (2)	18,180,481	0.37	0.38	431
34	Sunol				
	Domestic Supply	2,268,700	0.05	0.05	54
	Water Dept. Lands (2) From Transmission Lines	65,771,553	1.34	1.38	1,558
	Water Dept. Lands (2) Est'd Not from Transmission Lines	2,211,765	0.05	0.05	52
35	Vallecitos	26,937,600	0.55	0.57	638
36	Castlewood Country Club	496,900	0.01	0.01	12
37	Discontinued June 30, 1960				

DELIVERIES AND CONSUMPTION
FROM
SAN FRANCISCO WATER DEPARTMENT SOURCES
FISCAL YEAR 1963-64
(continued)

No.	Area, Utility or District	Metered Cu.Ft. Year	Delivery MGD	Consumption (1) MGD	Consumption (1) Ac.Ft. Year
	Alameda County (Cont'd)				
38	Pleasanton Well Field Agricultural Use (2) Estimated	62,802,941	1.28	1.32	1,488
39	Other water delivered in Alameda County	80,509,200	1.65	1.70	1,908
	Total for Alameda County	773,371,240	15.80	16.31	18,323
	Total for San Mateo, Santa Clara and Alameda Counties	4,783,877,240	97.77	100.90	113,344
	San Francisco County				
	San Francisco (2) From Lake Merced and Golden Gate Park Wells	4,015,480,900	82.06	94.56	106,222
	(2) Estimated	53,743,316	1.10	1.27	1,422
	Total for San Francisco County	4,069,224,216	83.16	95.83	107,644
	Total for San Francisco Water Department System	8,853,101,456	180.93	196.73	220,988

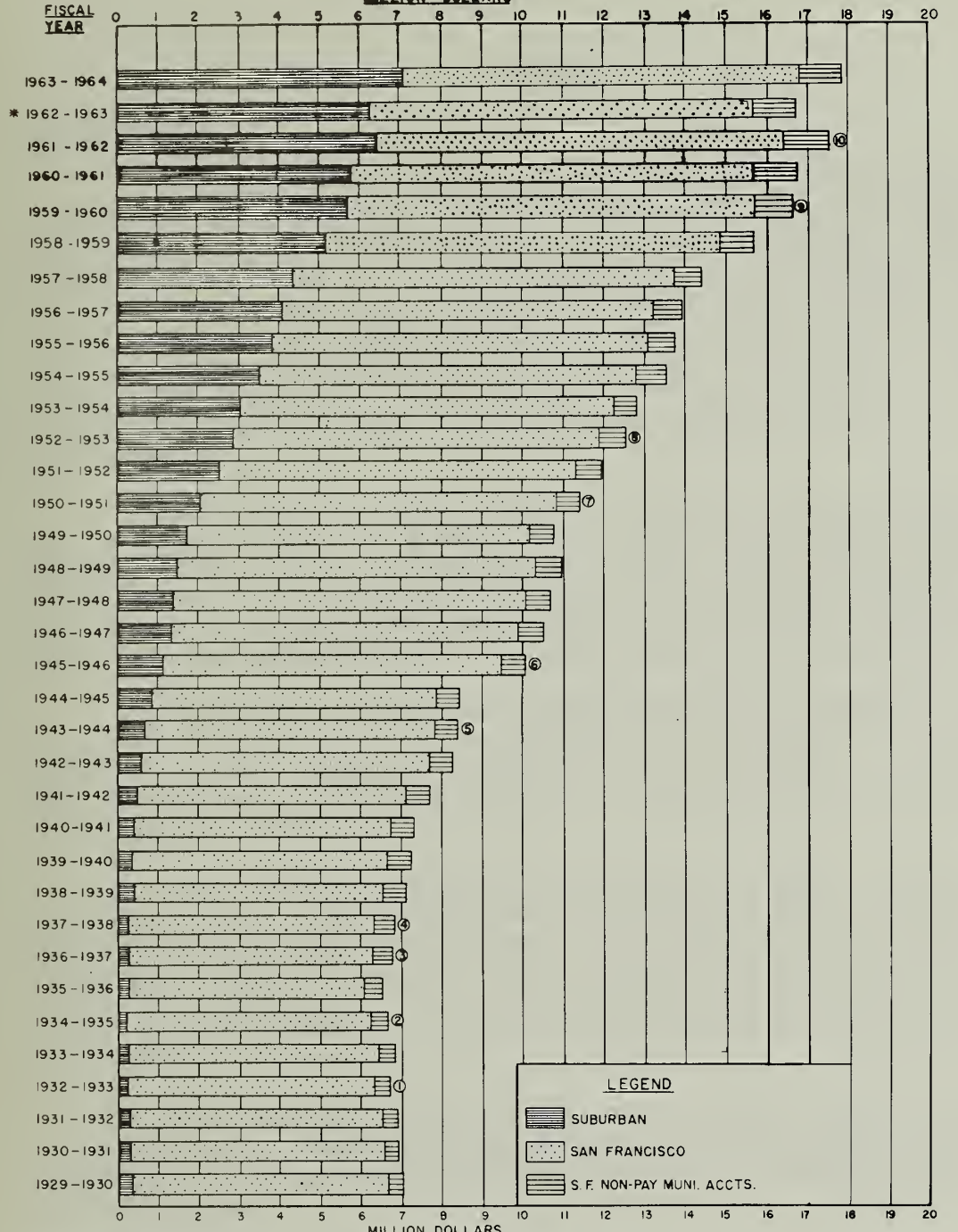
(1) Consumption is system input. The difference between "consumption" and "metered delivery" consists of system losses and uses, including leakage, losses due to pipe breaks, under-registration of meters, water used at hydrants that is not billed, blowoff water, water used for Water Department operating purposes, evaporation from distribution reservoirs and other similar losses.

(2) This water is not included in the tabluation "Water Sold in Suburban Area Fiscal Year 1963-64" of the Water Department's 1963-64 Annual Report, as water sold.

SAN FRANCISCO WATER DEPARTMENT

WATER SALES

MILLION DOLLARS



RATE CHANGES:

① OCT 26,1932 75% REOUCTION ON FIRE SPRINKLER SERVICE CHARGES.

② DEC 1,1934 10% REOUCTION ON ALL RATES EXCEPT HYDRANTS ANO SPRINKLERS.

③ JAN. 1,1937 7% & 48% REOUCTION ON INCREASEO USAGE AT INOUSTRIAL & WHOLESALE RATES

④ JAN 1,1938 7% & 48% REDUCTION APPLIEO TO ALL " " " " " " .

⑤ OEC. 1,1943 15% REOUCTION TO ALL CONSUMERS WITHIN CITY & COUNTY OF SAN FRANCISCO.

⑥ SEPT 1,1945 PRECEOING 15% REDUCTION REMOVEO FOR CONSUMERS WITHIN CITY & COUNTY OF SAN FRANCISCO. 15% INCREASE FOR SUBURBAN CONSUMERS

⑦ FEB. 1,1951 INCREASE FOR FOURTH BLOCK WATER TO 15 CENTS FOR CITY & 16 CENTS FOR SUBURBAN; 10% DISCOUNT ON FOURTH BLOCK IF WATER WERE NOT TAKEN FOR RESALE.

⑧ JULY 1,1952 BEGAN CHARGING REGULAR RATES TO 14 CONTRACT REDUCEO RATES CONSUMERS.

⑨ JAN 1,1960 FOURTH BLOCK WATER TO 13.5 CENTS FOR CITY AND 15 CENTS FOR SUBURBAN.
ONE CENT "DEMAND" CHARGE ADDED FOR RESALE ACCOUNTS.
MINIMUM BILLING ADOPTED FOR 1" AND LARGER METERS.
HYDRANTS AND SPRINKLERS IN CITY INCREASED TO $8.00 PER MONTH.

⑩ MAY 1, 1962 RATES FOR WATER REDUCED AN AVERAGE OF 6.3 %. ALSO 5th & 6th BLOCKS FOR WATER WERE ADDED.

* DECREASE IS DUE TO THE 6.3 % AVERAGE REDUCTION IN RATES FOR WATER THAT WAS PUT INTO EFFECT ON MAY 1, 1962.

X-1124 C

REVENUE

WATER SALES:

Sales of water to our customers during the fiscal year 1963-64 grossed $17,929,186, including $1,152,243 of sales to nonpaying Municipal Departments. The gross amount includes $24,014 of allowances to customers and $32,677 in allowances made on resale accounts in accordance with a Superior Court ruling; these two items reduce the gross sales by $56,691 so that net sales amounted to $17,872,495. Our policy is to allow credits on customers' bills where leakage occurred in house piping or fixtures when the customer promptly makes the necessary repairs.

This year's sales show an increase over the previous year of $1,167,243 or 7.0%. Net Sales in San Francisco, including $963,119 to nonpaying Municipal accounts, amounted to $10,653,494 or 59.6% of the total. Suburban Net Sales accounted for $7,219,001 or 40.4% of the total, including $189,124 to nonpaying City of San Francisco Departments.

Included in the above was $4,600,933 derived from sale of water to Municipal Utilities and Water Districts in the Suburban Area. This is an increase of $612,970. Revenue from sale of water to private utilities amounted to $2,080,957, an increase of $198,111.

Customers' Accounts Receivable showed a balance of $1,591,601 due the Department on June 30, 1964. This includes $70,371 unpaid on old "reduced rate contract" accounts, not yet settled. Collections for the year were $16,395,152, an increase of $884,655. There were 972,612 bills issued during the year, of which 910,407 were for bi-monthly accounts and $62,205 for monthly accounts.

Uncollectible bills totaled $19,729, being 0.11% of total charges. The Suspense Balance, consisting of "Closed" accounts awaiting collection or write-off, was $13,191 on June 30, 1964.

OTHER INCOME:

Revenue from rentals, including crop shares and royalties, amounted to $435,396 for the year, which is $31,339 more than the previous year.

The walnut orchard was leased on May 1, 1959 for private operation on percentage rental. For the crop year 1963 the City received $31,228 on this lease, an increase of

$3,547 from the previous year. The walnut crop year extends from December 1 to November 30.

Interest on bank balances increased over the previous year from $105,000 to $109,958.

Miscellaneous income was $280,093. The largest single source of this income was from amounts collected on claims against contractors for damage to the Department's facilities.

CLAIMS

Claims filed by the Department during the year against others, principally street work contractors who damaged our facilities, amounted to 71 in number for a total of $17,243. Including the balance pending at the beginning of the year, 71 claims were processed against others for a total sum of $13,702. These 71 were settled for $10,365 out of the original claims amount of $13,702, or 76% recovery. Claims against others pending on June 30, 1964 were 52 in number for a total amount of $51,791. This is the same number of claims outstanding at the beginning of the year with the then total amount being $48,250.

During the year 197 claims (other than rate claims) in the total amount of $959,343 were filed against the Department. Claims of this type pending at the beginning of the year numbered 55 for a total of $157,704 so that 264 claims in the total amount of $1,138,714 were processed. 173 claims totaling $253,646 were denied or settled for $23,508, a saving of $230,138. On June 30, 1964, 67 claims of this type in the sum of $863,401 remained, not including "rate case" claims.

In addition to the foregoing, the policy of investigating dangerous conditions of the Department's facilities and instances of damage where no formal claims were filed, was continued. The former is in line with the policy of accident prevention and the latter for protection in case formal claims are subsequently made.

The investigations in many instances require an engineering study to determine what the Department should do regarding the claim. Remedial work is required in some of the cases.

LOMBARD RESERVOIR
Roof and Reconstruction Completed

ADDITIONS, BETTERMENTS, RECONSTRUCTION AND REPLACEMENTS

During the fiscal year this Department handled 53 formal construction contracts valued at $16,436,200.00. Thirty-four of the 53 were new contracts awarded during the year, of which 22 were completed, 6 were under construction, and 6 were not started. Nineteen contracts were carried over from the previous year, two of which were not completed.

The money actually spent on contracts during the fiscal year ending June 30, 1964, including the engineering and inspection costs bid by the contractor on the cast iron main contracts, was approximately $12,489,700.00.

Major emphasis for the year focused on the bond issue projects and the projects financed out of revenue, with considerable work required in connection with freeway construction. Bond issue projects included the construction of the James H. Turner Dam and Bay Division Pipeline No. 4, Section B, both of which were well under way at the end of the fiscal year, and preliminary work on Bay Division Pipeline No. 4, Section A, and borings and surveys for the Crystal Springs Bypass tunnel. The San Antonio-Calaveras Water Filtration Plant Project, to be financed partly out of the bond fund and partly fron revenue, was also an active project during the year. Principal revenue projects included completion of the Corporation Yard at 1990 Newcomb Avenue, San Francisco, completion of the roof and lining of University Mound Reservoir, completion of Lombard Street Reservoir Rehabilitation and the near completion of the relocation of the 44" San Andreas pipeline through the tract formerly known as the Silva Tract, Millbrae.

Plans and specifications for the San Antonio-Calaveras Water Filtration Plant, prepared by Brown and Caldwell and James M. Montgomery Consulting Engineers, were received by the Department in May and transmitted to the Public Utilities Commission on May 22, 1964. Bids for this project, estimated to cost $4,450,000, will be received on July 9, 1964.

Plans and specifications for the relocation of the 44" San Andreas Pipeline in the Silva Tract were completed by the Department and sent to the Public Utilities Commission on January 29, 1964. Underground Construction Company, Inc., submitted a low bid in amount of $207,656.00 and the contract was awarded on March 3, 1964. By the end of the year work was nearing completion.

Plans and specifications for Reconstructing Portions of the Crystal Springs Golf Course were sent to the Public Utilities Commission for advertising on June 4, 1964 and bids will be received on July 23, 1964. This work, estimated to cost $395,000,

will be paid for by the State of California and is necessary due to the Junipero Serra Freeway construction in that area. The plans and specifications were prepared in conjunction with Mr. W. P. Bell, Golf Course Architect, employed by the State.

Considerable staff time, probably more than normal, was spent in discussions with representatives of the Division of Highways, City and County agencies, other organizations and interested individuals on relocation of utilities because of streets, freeways, flood control channels and other utility crossings and interference of Water Department facilities and in preparation of permits or contracts leading to the solution of these relocation problems. Of major importance to the Department was the negotiation and work involved in utility relocation for the Southern Freeway and the Junipero Serra Freeway. The latter freeway, in addition to the work at Crystal Springs Golf Course, requires relocation of Pacific Gas and Electric gas mains in our Peninsula watershed lands. It also involved arriving at satisfactory arrangements with the State to protect the lakes from high turbidity during the freeway construction and providing adequate access roads for the Department's use in maintaining, operating and protecting the Crystal Springs and San Andreas watershed lands.

During this year several Professional Services Agreements were arranged and work under existing agreements was continued. This type of agreement is used for the performance of work that requires specialized experience and personnel or for work that the Department cannot accomplish on schedule because qualified personnel are already engaged on projects of high priority.

The preliminary studies for and design of Water Treatment Plants currently being carried out is one example of the type of work best accomplished under a Professional Services Agreement.

Insulating joints were installed in the newly constructed Bay Division Pipeline No. 4. Main line gate valves in Bay Division Pipeline No. 4 and the connecting gate valves between Bay Division Pipeline No. 3 and Bay Division Pipeline No. 4 were insulated to prevent corrosion of the pipelines due to electrolysis.

Existing cathodic protection stations along the transmission mains were inspected regularly and adjusted to insure adequate protection to the pipelines in the most corrosive areas.

On October 1, 1963, a contract was awarded to The Pitometer Associates for the location of major underground leaks from mains and services and to determine the interior conditions of several mains. The cost of this work to June 30, 1964 was $14,376.60.

Leaks surveys were conducted on 190 miles of water mains in 11 districts. One hundred thirty leaks were located and repaired, reducing waste a total of 734,000 gallons per day. At the minimum rate for water sold within the city limits, the repair of these leaks represented an annual saving of approximately $48,400.00. Large industrial consumers were checked to detect the unauthorized use of unmetered water through fire lines or otherwise, and all commercial and industrial meters over 3" diameter were tested.

The six major projects authorized by the $115,000,000 Water Supply Improvement Bond Issue at the 1961 election were proceeding on schedule. Construction is under way on James H. Turner Dam (formerly San Antonio Dam which is the principal unit of the San Antonio Dam Project), and on Bay Division Pipeline No. 4, Section B.

The remaining projects or units of projects and their tentative beginning construction dates are as follows:

1.	1965	Crystal Springs to San Andreas Reservoir Pipeline and Pump Station Improvements	$ 2,700,000
2.		San Antonio Dam Project	
		1964 San Antonio-Calaveras Filtration Plant (An additional $2,500,000 for this plant was provided for in the 1963-64 budget)	2,500,000
		1965 Pipeline and Pumping Plant	1,160,000
3.	1965	Bay Division Lines to Crystal Springs Lines Connection	10,000,000
4.		Bay Division Pipeline No. 4	
		1965 Pipeline from Siphon to Filtration Plant	800,000
		1965 Siphon, Manifold and Valves	580,000
		1965 Section A	4,750,000
		1965 Pipe and Pumping Plant - Sunol	504,000
		1967 Section C	4,250,000
5.	1967	Crystal Springs Pipeline No. 3 Burlingame to Baden Section	3,300,000
6.	1967	Balboa Reservoir, Lining, Roof and Appurtenances - South Basin	3,000,000

FORMAL CONTRACTS

The work under formal contracts has been separated into two main categories: Replacements and Additions to City Pipe System, and Replacements and Additions to supply, transmission, treatment and miscellaneous facilities. Twenty-nine contracts valued at $1,855,000 were for additions, replacements and relocations to the City pipe system and twenty-four contracts valued at $14,581,200 were for replacements and additions to supply, transmission, treatment and miscellaneous facilities. The contracts on the City pipe system include relocations required because of freeway construction, which work is performed at State expense except for certain credit allowances for depreciation of the replaced facility.

Replacement and Additions to City Pipe System:

The 29 contracts for additions to the City pipe system provided for the installation of about 65,200 feet of pipe. Most of this pipe was cast iron varying from 4" to 16" in diameter, approximately 70% of which was 6" and 8" diameter. Included in this amount was 15,600 feet of 6-5/8", 8-5/8", 18", 20", 24" and 30" steel pipe. However, not all of this pipe was installed during the fiscal year.

Contract No. 988 -- For the installation of 29 services and laying of 181 feet of 4", 585 feet of 6" and 190 feet of 8" cast iron mains in Mendosa Avenue and other streets (Forest Hill Heights). The contract was awarded to Associated Pipeline, Inc. on June 11, 1962, at a bid price of $10,901.50 and completed on July 30, 1963 at a cost of $10,548.42.

Contract No. 1069 -- For laying of 680 feet of 6-5/8", 504 feet of 18" and 1,494 feet of 24" steel mains in Geneva and Ocean Avenues. The contract was awarded to Underground Construction Company on February 13, 1963 at a bid price of $56,619.00 and completed on January 10, 1964 at a cost of $58,741.65.

Contract No. 1089 -- For the laying of 1,072 feet of 16" cast iron mains, 6,475 feet of 20" and 5,819 feet of 24" steel mains in Madrid, Geneva, Huron and other streets. The contract was awarded to McGuire and Hester on May 14, 1963 at a bid price of $283,216.00 and completed on November 6, 1963 at a cost of $279,066.40.

Contract No. 1091 -- For the installation of 20 services and laying of 3,500 feet of 8", 4,384 feet of 12" and 1,036 feet of 16" cast iron mains in Army, Pennsylvania, Selby, Newcomb and other streets. The contract was awarded to Associated Pipeline, Inc. on July 5, 1963 at a bid price of $119,695.50 and completed on January 6, 1964 at a cost of $119,993.05.

Contract No. 1092 -- For reconditioning of 706 feet of 22", 11,236 feet of 30", 2,737 feet of 36", 7,503 feet of 37" and 2,075 feet of 48" steel pipe in Harrison, San Jose, Holladay, Chenery and other streets. The contract was awarded to Pipe Linings, Inc. on September 17, 1963 at a bid price of $133,890.00 and completed on March 5, 1964 at a cost of $136,249.60.

Contract No. 1108 -- For the installation of 12 services and laying of 245 feet of 4" cast iron mains in Day Street west of Castro Street. The contract was awarded to W. L. Fairey on November 7, 1963 at a bid price of $3,102.75 and completed on February 20, 1964 at a cost of $3,142.15.

Contract No. 1109 -- For the installation of 28 - 1" services and laying of 1,050 feet of 6" cast iron mains in Gilroy Street and Ignacio Avenue. The contract was awarded to Michael Murphy, Jr. on June 3, 1964 at a bid price of $12,480.50. Work had not started as of June 30, 1964.

Contract No. 1113 -- For the installation of 459 services and laying of 646 feet of 4" and 17,515 feet of 6" cast iron mains in Magellan, Dorantes and other streets. The contract was awarded to McGuire and Hester on September 17, 1963 at a bid price of $191,095.00 and completed on February 11, 1964 at a cost of $185,240.37.

Contract No. 1115 -- For the installation of 19 services and laying of 452 feet of 6" and 510 feet of 16" cast iron mains in University Street between Mansell and Olmstead Streets. The contract was awarded to Michael Murphy, Jr. on June 12, 1963 at a bid price of $15,319.00 and completed on January 8, 1964 at a cost of $15,091.42.

Contract No. 1116 -- For the installation of 29 services and laying of 774 feet of 8" cast iron mains in Corbett Avenue North of Glendale Street. The contract was awarded to W. L. Fairey on July 1, 1963 at a bid price of $10,591.00 and completed on September 19, 1963 at a cost of $10,784.28.

Contract No. 1117 -- For the installation of 13 services and laying of 471 feet of 8" cast iron mains in Crestmont Drive. The contract was awarded to Michael Murphy, Jr. on October 16, 1963 at a bid price of $5,661.25 and completed on March 20, 1964 at a cost of $5,666.51

Contract No. 1119 -- For laying of 606 feet of 8" cast iron mains in 19th Avenue south of Wawona Street. The contract was awarded to W. L. Fairey on August 21, 1963 at a bid price of $6,485.25 and completed on April 2, 1964 at a cost of $7,133.14.

Contract No. 1120 -- Annual paving contract 1963-64, for repair of street and sidewalk openings. Contract was awarded to Pacific Pavements Co., Ltd. on June 10, 1963 at a bid price of $268,000.00 and was completed on June 30, 1964 at a cost of $311,671.03.

Contract No. 1126 -- For the installation of 15 services and laying of 892 feet of 6" cast iron mains in Lombard Street between Franklin Street and Van Ness Avenue. The contract was awarded to Michael Murphy, Jr. on August 15, 1963 at a bid price of $12,529.00 and completed on January 9, 1964 at a cost of $13,081.60.

Contract No. 1129 -- For the installation of 40 services and laying of 700 feet of 6" and 405 feet of 8" cast iron mains in Velasco Avenue between Calgary and Schwerin Streets. The contract was awarded to W. L. Fairey on August 28, 1963 at a bid price of $10,235.90 and completed on January 17, 1964 at a cost of $10,602.40.

Contract No. 1130 -- For laying of 300 feet of 8" cast iron main in Hawthorne Street. The contract was awarded to Associated Pipeline, Inc. on August 21, 1963 at a bid price of $7,008.50 and completed on January 22, 1964 at a cost of $7,115.58.

Contract No. 1131 -- For laying of 168 feet of 8" cast iron mains, 258 feet of 8-5/8", 50 feet of 24" and 1,109 feet of 30" steel mains in Orizaba, Belle and other streets. The contract was awarded to McGuire and Hester on February 18, 1964 at a bid price of $111,087.00. Work was started on March 27, 1964 and was approximately 71% completed as of June 30, 1964 at a cost of $72,839.28.

Contract No. 1135 -- For laying of 350 feet of 4" cast iron mains in Shakespeare Street. The contract was awarded to W. L. Fairey on January 20, 1964 at a bid price of $5,922.00 and completed on March 5, 1964 at a cost of $5,546.10.

Contract No. 1136 -- For the installation of 23 - 3/4" services and laying of 360 feet of 6" cast iron mains in Lobos Street west of Caine Avenue. The contract was awarded to Associated Pipeline, Inc. on December 23, 1963 at a bid price of $5,700.50. Work had not started as of June 30, 1964.

Contract No. 1137 -- For the installation of 24 - 1" services and laying of 590 feet of 4" and 590 feet of 6" cast iron mains in Casitas Avenue east of Lansdale Avenue. The contract was awarded to W. L. Fairey on May 12, 1964 at a bid price of $7,628.50. Work had not started as of June 30, 1964.

Contract No. 1139 -- For the installation of 26 services and laying of 1,580 feet of 8" and 357 feet of 12" cast iron mains in Herman, Mason and Irving Streets. The contract was awarded to Associated Pipeline, Inc. on January 29, 1964 at a bid price of $30,665.60 and completed on April 7, 1964 at a cost of $32,769.40.

Contract No. 1140 -- For the installation of 25 services and laying of 359 feet of 4" and 1,602 feet of 6" cast iron mains in Van Ness Avenue between California and Union Streets. The contract was awarded to Associated Pipeline, Inc. on March 3, 1964 at a bid price of $28,872.00 and completed on May 13, 1964 at a cost of $30,349.54.

Contract No. 1141 -- For the installation of 220 services and laying of 5,000 feet of 8" cast iron mains in Haight Street between Market Street and Central Avenue. The contract was awarded to Associated Pipeline, Inc. on February 18, 1964 at a bid price of $118,309.00. Work was started on March 30, 1964 and was approximately 77% completed as of June 30, 1964 at a cost of $68,662.00.

Contract No. 1142 -- For the installation of 6 services and laying of 296 feet of 6" cast iron mains in Burrows Street between Bowdoin and Hamilton Streets. The contract was awarded to W. L. Fairey on December 30, 1963 at a bid price of $3,711.50 and completed on February 14, 1964 at a cost of $3,959.83.

Contract No. 1143 -- For the installation of 8 services and laying of 371 feet of 6" cast iron mains in Geneva Avenue between Alemany Boulevard and Baywood Court. The contract was awarded to Michael Murphy, Jr. on March 10, 1964 at a bid price of $5,328.00 and completed on April 23, 1964 at a cost of $5,712.02.

Contract No. 1144 -- For the installation of 10 services and laying of 392 feet of 8" cast iron mains in Alemany Boulevard between Mt. Vernon and Niagara Avenues. The contract was awarded to W. L. Fairey on May 20, 1964 at a bid price of $6,835.00 and completed on July 8, 1964 at a cost of $6,966.57.

Contract No. 1153 -- For the installation of 5 - 1½", 107 - 1" and 34 - 3/4" services and laying of 500 feet of 4" and 4,820 feet of 6" cast iron mains in McLaren Avenue, 40th Avenue and other streets. The contract was awarded to Lowrie Paving Co., Inc. on June 3, 1964 at a bid price of $68,759.25. Work had not started as of June 30, 1964.

Contract No. 1157 -- Annual paving contract 1964-65, for repair of street and sidewalk openings. Contract was awarded to Pacific Pavements Co., Ltd. on June 10, 1964 at a bid price of $310,382.00. The contract was not started as of June 30, 1964.

Contract No. 1164 -- For the installation of 1 - 3/4" and 5 - 1" services and laying of 385 feet of 8" cast iron mains in Alemany Boulevard east of Banks Street. The contract was awarded to W. L. Fairey on June 23, 1964 at a bid price of $4,985.95. Work had not started as of June 30, 1964.

Replacements and Additions to Supply, Transmission, Treatment and Miscellaneous Facilities: (Includes Bond Projects)

A total of approximately $11,147,500.00 was spent during the fiscal year for work in this category.

The largest amount paid under a single contract was $5,742,844.04 for construction on Bay Division Pipeline No. 4, Section B. Another large item was $3,127,044.34 spent for construction on the James H. Turner Dam in Alameda County. Both of these projects are still under construction.

The largest contract award was for Rehabilitation of the Lombard Street Reservoir, $250,800.00. Construction of this project started September 9, 1963.

Contract No. 969 -- For construction of the Pulgas Temple Water Supply. The contract was awarded to Wenrick and Associates on June 18, 1963 at a bid price of $20,597.59 and was completed on September 19, 1963 at a cost of $20,433.69.

Contract No. 984 -- For construction of roof and rehabilitation of lining at University Mound Reservoir - North Basin. The contract was awarded to Engstrum and Nourse on March 27, 1962 at a bid price of $1,493,742.17 and was completed on August 2, 1963 at a cost of $1,480,460.76.

Contract No. 997 -- For construction of Forest Hills Pump Station. The contract was awarded to S & Q Construction Company on April 30, 1963 at a bid price of $43,547.80 and was completed on October 3, 1963 at a cost of $43,845.23.

Contract No. 1007R -- For alterations and electrical work at Sunol Pump Station. The contract was awarded to Mitchell Plumbing Company on May 21, 1963 at a contract bid price of $3,800.00, and was completed on July 26, 1963 at a cost of $3,800.00.

Contract No. 1029 -- To enlarge Palo Alto pipeline service at Redwood City and install meter for Crystal Springs Pipeline No. 1 near Hillsborough. The contract was awarded to S & Q Construction Company on October 15, 1963 at a bid price of $31,131.00 and was completed on February 8, 1964 at a cost of $29,515.00.

Contract No. 1063 -- For clearing of reservoir and dam site - San Antonio Dam Project. The contract was awarded to the Chandler Newman Construction Company on January 15, 1963 at a lump sum price of $114,500.00 and was completed on July 29, 1963 at a cost of $114,500.00.

Contract No. 1063A -- For construction of fence at James H. Turner (San Antonio) Dam. The contract was awarded to Alves-Pools, Inc. on January 29, 1963 at an estimated bid price of $22,905.00 and was completed on July 26, 1963 at a cost of $21,103.72.

Contract No. 1064 -- For road relocation at James H. Turner (San Antonio) Dam Project. The contract was awarded to Eugene G. Alves Construction Co., Inc. on October 22, 1963 at an estimated bid price of $169,366.90 and was completed on April 10, 1964 at a cost of $181,974.28.

Contract No. 1065 -- For installation of valve and bypass on Crystal Springs Pipeline No. 2 at El Cerrito Road. The contract was awarded to Associated Pipeline, Inc. on April 23, 1963 at an estimated bid price of $44,666.00 and was completed on July 18, 1963 at a cost of $45,350.00.

Contract No. 1085 -- For reroofing of Stanford Heights Reservoir. The contract was awarded to Roy Madsen Construction Company on April 30, 1963 at an estimated bid price of $32,728.00 and was completed on August 17, 1963 at a cost of $35,874.00.

Contract No. 1086 --For the reconstruction of timber bridges and roadway from Newark to Newark Slough. The contract was awarded to Roy Madsen Construction Company on June 25, 1963 at an estimated bid price of $36,565.00 and was completed on December 18, 1963 at a cost of $40,200.00.

Contract No. 1090 -- For construction of Water Department Corporation Yard. The contract was awarded to Cahill Construction Company on December 11, 1962 at a bid price of $1,256,000.00 and was completed on April 8, 1964 at a cost of $1,260,301.14.

Contract No. 1095 -- For rehabilitation of the Lombard Street Reservoir. The contract was awarded to Hart and Hynding, Inc. on August 13, 1963 at an estimated bid price of $250,800.00. The contract cost through June 30, 1964 was $249,120.50.

Contract No. 1096 -- For construction of San Andreas Outlet No. 3 Chlorination Station. The contract was awarded January 7, 1964 to C. Norman Peterson Company at an estimated bid price of $69,703.00. The contract cost through June 30, 1964 was $68,806.49.

Contract No. 1097 -- For construction of Rock River Chlorination Building in Tuolumne County. The contract was awarded to Charles I. Cunningham Company on September 3, 1963 at a lump sum bid price of $3,993.00 and was completed on January 10, 1964 at a cost of $3,993.00.

Contract No. 1099 -- For construction of the James H. Turner (San Antonio) Dam. The contract was awarded to Peter Kiewit Sons' Company on March 12, 1963 at an estimated bid price of $4,390,132.00. The contract cost through June 30, 1964 was $3,543,278.87.

Contract No. 1100 -- For construction of Bay Division Pipeline No. 4 - Section B. The contract was awarded to United States Steel Corporation on April 30, 1963 at an estimated bid price of $6,285,030.12. The contract cost through June 30, 1964 was $5,742,844.04.

Contract No. 1111 -- For construction of fence at Lake Merced Pumping Plant. The contract was awarded to International Steel Fence Company on May 14, 1963 at an estimated bid price of $4,500.50 and was completed on July 24, 1963 at a cost of $4,500.00.

Contract No. 1112 -- For construction of fence on San Andreas watershed lands in San Mateo County. The contract was awarded to Wulfert Company, Inc. on August 6, 1963 at an estimated bid price of $15,996.00 and was completed on October 31, 1963 at a cost of $14,950.56.

Contract No. 1114 -- For replacing Sunol Pipeline under Laguna Creek. The contract was awarded to McGuire and Hester on June 25, 1963 at an estimated bid price of $12,210.00 and was completed on August 20, 1963 at a cost of $12,538.00.

Contract No. 1127 -- For relocation of 44" San Andreas Pipeline in former Silva Tract, Millbrae. The contract was awarded to Underground Construction Company on March 3,1964 at an estimated bid price of $207,656.00. The contract cost through June 30, 1964 was $175,127.40.

Contract No. 1132A -- For City of Hayward service connection to Bay Division Pipelines No. 1 and No. 2 near Newark Valve House. The contract was awarded to Underground Construction Company, Inc. on September 24, 1963 at an estimated bid price of $45,429.00 and was completed on December 19, 1963 at a cost of $48,301.73.

Contract No. 1138 -- For burning debris at James H. Turner Dam Project in Alameda County. The contract was awarded to Heim Bros., Inc. on December 24, 1963 at an estimated bid price of $11,070.00 and completed on February 24, 1954 at a cost of $10,330.00.

Contract No. 1151R -- For exploratory drilling for Crystal Springs bypass tunnel. The contract was awarded to Continental Drilling Company on March 31, 1964 at an estimated bid price of $15,080.00. The contract cost through June 30, 1964 was $14,308.00.

LANDS, LEASES AND PERMITS

LAND TRANSACTIONS:

On June 30, 1963 there were 63,044.500 acres of land owned by the Department. There were 0.067 acres purchased and 3.680 acres sold during this fiscal year, leaving 63,040.887 acres owned by the Department on June 30, 1964.

Detailed purchases and sales are:

PURCHASES:	PURCHASES (Acres)	SALES (Acres)
San Francisco County		
Vista Francisco Pump Station Lot	0.067	
SALES:		
San Mateo County		
Crystal Springs Filtration Plant Site		0.110
Parcel 19-20 Baden Lots		3.570
	0.067	3.680
Net Decrease in Acres		3.613

LEASED ACREAGE:

Out of the 63,045 acres under the jurisdiction of the Water Department about 37,500 acres are under lease or revenue producing permits.

During the fiscal year 130 revocable permits were prepared and 25 were cancelled. Forty leases were prepared and 16 executed in this period.

CATTLE LEASES:

There were 36 grazing leases and 28 grazing revocable permits covering 31,900 acres in effect at the end of the fiscal year. These leases run an average of five years, generally commencing on November 1. The Department continued in the land management policy of improving grazing lands through the lessee's participation in County Conservation programs. This program includes improved fencing and roads, the development of small impounding dams, reseeding and weed and rodent control. A total of 52 water collecting ponds, from 15,000 gallons to 3,000,000 gallons capacity, have been developed by lessees.

Rentals from the Department's grazing lands run from $4.00 to $7.50 per acre, depending on the amount of available feed.

SHARE CROP AND FARMING LEASES:

The principal activity in this field is the raising of oats, barley and wheat hay, and barley and oat grain, of which the City receives a fourth share under that type of lease, yielding $15 to $25 per acre to the City, depending on seasonal and weather conditions.

A large acreage is devoted to specialty crops such as vegetables and flower crops which yield from $65 to $85 per acre to the City.

Strawberry acreage yields a rental of $100 to $150 per acre.

Alfalfa lands yield four to five cuttings of hay per season. The rental is one-fourth share of the crop.

ROYALTIES AND PERCENTAGE LEASES:

The Santa Clara Sand and Gravel Company's lease on 50 acres in the Sunol Valley produced a revenue for the City of $91,140. An additional 65 acres were added to the original lease, totaling 115 acres.

The income from the Crystal Springs Golf Course, on a percentage basis, was $31,700.

COMMERCIAL LEASES AND PERMITS:

There are now over 125 commercial leases and revenue producing permits covering parking lots, radio station, nursery, research laboratory, mortuary, golf courses, restaurant and other types of commercial enterprises. In addition to the above, there are over 450 non-revenue revocable permits in effect. These are for non-commercial use of the land or where use of the land is of a limited commercial value and the City charges a $50 fee to cover costs of issuing the permit. The lessee must obtain all local permits and sufficient Public Liability and Property Damage insurance to protect the City as an additional insured.

There are now 16 permits or leases bringing in an annual revenue of $38,000 from the former Municipal Railway right of way in San Mateo County. These lessees use the property for parking and other types of use in connection with adjacent private commercial enterprises.

Niles Canyon in Alameda County is used for small picnic grounds under 12 permits. These rentals now pay approximately $11,000 per year, which is $7,800 more than received from this property six years ago.

WALNUT ORCHARD:

The lessee of the Department's 200 acre walnut orchard severely head prunes about 15 acres of the original 100-acre orchard per year. This is a continuing program to reinvigorate the trees by inducing new growth and fruiting wood. The City received $31,500 from 52.61% of the crop, which is the percentage of the crop reverting to the City under the terms of the lease.

The principal varieties grown are the Franquette, Mayette, Hartley and Payne. The quality of the nuts remains among the highest of those delivered to the Walnut Growers Association.

GENERAL:

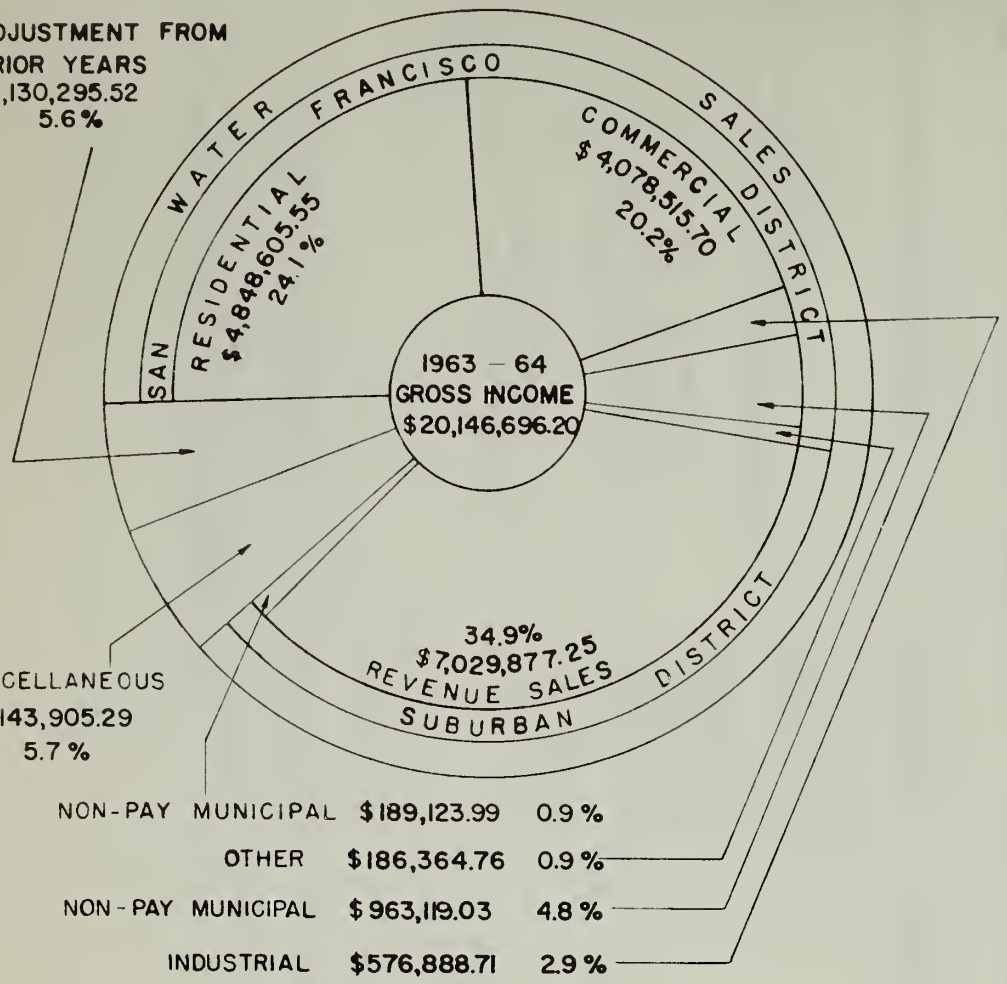
The preparation of legal descriptions of real property and accompanying maps showing the boundaries and location of property to be leased, disposed of or acquired, totaled some 86 parcels this year. Revocable permits with appropriate terms and conditions, with accompanying maps, totaling 130 were prepared. There were 32 court actions in connection with condemnations and quieting of title actions for which 7 exhibits and the supporting data were prepared. All of this work mentioned above is done in the Engineering Division where extensive records of the Department's real property are maintained.

A majority of survey work this year was related to progress on the 1961 Bond Fund Program. This work included the construction of the James H. Turner Dam, the road around the dam, the construction of Bay Division Pipeline No. 4, Section "B", and the work connected with Bay Division Pipeline No. 4, Section "A", for plans and profiles.

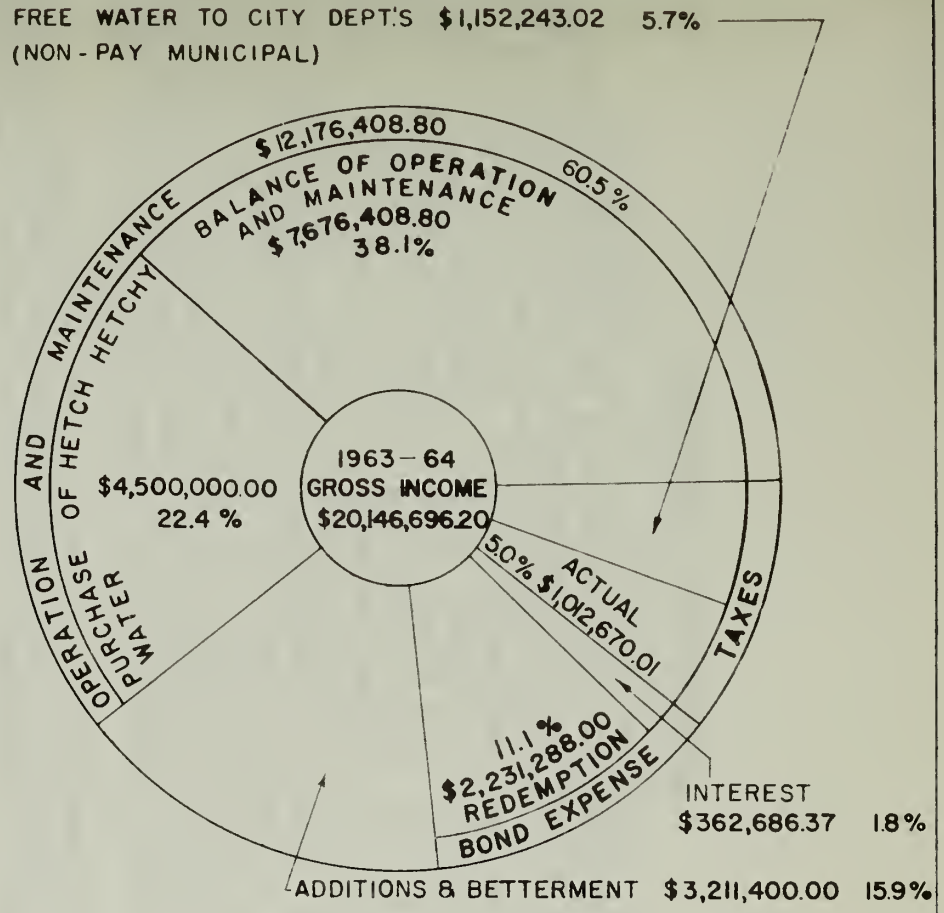
Additional surveys were made for the alignment of the By-Pass Tunnel for Crystal Springs and levels were run for the core drilling.

Survey work was also performed on Crystal Springs Golf Course, the fence on the Consumers Ice Company property, the pipeline change in the Silva Tract, the San Antonio-Calaveras Water Filtration Plant site and the pipelines appurtenant to the job, and various lease and property surveys.

WATER DEPARTMENT CORPORATION YARD
Operations Moved to New Yard February 1964


ADJUSTMENT FROM PRIOR YEARS $1,130,295.52 5.6%
SAN FRANCISCO WATER SALES DISTRICT
RESIDENTIAL $4,848,605.55 24.1%
COMMERCIAL $4,078,515.70 20.2%
1963 – 64 GROSS INCOME $20,146,696.20
34.9% $7,029,877.25 REVENUE SALES DISTRICT SUBURBAN
MISCELLANEOUS $1,143,905.29 5.7%
NON-PAY MUNICIPAL $189,123.99 0.9%
OTHER $186,364.76 0.9%
NON-PAY MUNICIPAL $963,119.03 4.8%
INDUSTRIAL $576,888.71 2.9%

SOURCE OF INCOME
FISCAL YEAR ENDING JUNE-30, 1964


FREE WATER TO CITY DEPT'S $1,152,243.02 5.7%
(NON-PAY MUNICIPAL)
$12,176,408.80 60.5%
BALANCE OF OPERATION AND MAINTENANCE $7,676,408.80 38.1%
OPERATION AND MAINTENANCE OF HETCH HETCHY
PURCHASE WATER $4,500,000.00 22.4%
1963 – 64 GROSS INCOME $20,146,696.20
5.0% $1,012,670.01 ACTUAL TAXES
11.1% $2,231,288.00 REDEMPTION
BOND EXPENSE
INTEREST $362,686.37 1.8%
ADDITIONS & BETTERMENT $3,211,400.00 15.9%

DISPOSITION OF GROSS INCOME
FISCAL YEAR ENDING JUNE-30, 1964

12

X-1124A

ACCOUNTING AND AUDITING

The accounts of the San Francisco Water Department are maintained strictly in accordance with the requirements of the State Public Utilities Commission and Section 64 of the Charter. The accounts of the Department have been so coordinated with the Controller's system that no encumbrance or expenditure against budget estimates can be incurred without prior certification from the Controller that funds are available. As provided in Ordinance 9,0621, an annual audit of the Department is made as of June 30 by a firm of certified public accountants. The accountants' report is not available at the time the Department's financial statement goes to press, hence there may be minor differences between the two reports due to reclassifications made by the accountants. The valuation of the Water Department's properties that is required by Section 128 of the City Charter at least every five years, was made by professional consultants Hood and Strong, C.P.A., during the fiscal year.

Operating Expenses show a net increase of $224,696.96 as shown by the following tabulation, the largest component of which was a decrease of $500,000 transferred to Hetch Hetchy Project.

OPERATING REVENUE DEDUCTIONS	Increase	Decrease
Source of Supply	$ 39,533.73	
Pumping Expenses	31,292.38	
Purification Expenses	85,477.02	
Transmission and Distributions Expenses	344,109.34	
Customers Accounts Expenses	18,483.58	
Administrative and General	53,524.67	
*Municipal Taxes, Comparison	105,444.50	
Miscellaneous Expenses		$ 16,824.00
Taxes Actual	20,886.53	
Provision for Depreciation	42,769.21	
Standby Charge and Purchase of Water		500,000.00
Net Decrease		224,696.96
	$ 741,520.96	$ 741,520.96

*Water delivered to Municipal Departments offset by taxes.

An analysis of Revenue and Operating Expenses is shown in the following Exhibits "A" through "E".

SAN FRANCISCO WATER DEPARTMENT
COMPARISON OF BUDGETED AND ACTUAL EXPENDITURES (INCLUDING ENCUMBRANCES)
FISCAL YEAR 1963-64

OE	DESCRIPTION	BUDGET	ACTUAL	-UNDER, OVER
110	Permanent Salaries	$ 2,774,512	$ 2,466,111	$ -308,401
111	Allowance for Overtime	46,100	46,458	358
112	Allowance for Holiday	12,224	13,326	1,102
113	Extended Work Week	43,685	41,354	-2,331
120	Temporary Salaries	134,800	113,015	-21,785
130	Wages	2,193,284	2,185,430	-7,854
130	Wages - Gardeners	108,886	106,890	-1,996
	Subtotal (Personal Services)	5,313,491	4,972,584	-340,907
200	Contractual Services	415,484	496,128	80,644
216	Maint. & Repair Automotive Equip.	108,353	118,823	10,470
231	Heat, Light & Power	286,500	294,775	8,275
251	Subsistence & Care of Persons	1,000	497	- 503
270	Bond Sale Expense	5,000	560	-4,440
300	Materials and Supplies	440,000	512,988	72,988
801	Compensation Insurance	10,135	23,156	13,021
804	Injuries & Damages	20,000	23,597	3,597
812	Fidelity Insurance	1,175	892	- 283
813	Automobile Insurance	16,960	12,944	-4,016
814	Fire Insurance	5,000	2,310	-2,690
815	Other Insurance	15,300	10,694	-4,606
820	Commissions for Collections	19,800	19,304	- 496
853	Assessments and Contributions	40,000	9,639	-30,361
854	Membership Dues	570	520	- 50
855	Fees, Licenses & Permits	8,900	6,942	-1,958
860	Retirement Allowance	293,049	292,148	- 901
862	Social Security	90,480	85,774	-4,706
865	Health Service System	49,155	50,985	1,830
870	Taxes	1,000,000	1,012,670	12,670
880	Rents	4,510	1,434	-3,076
900	Service of Other Departments	136,829	136,791	- 38
954	Electronic Data Processing	264,900	200,362	-64,538
	Total Operation and Maintenance	8,546,591	8,286,517	-260,074
400	Equipment	144,827	132,319	-12,508
746	Reconstruction & Replacements	738,000	738,000	
747	Additions & Betterments	3,211,400	3,211,400	
830	Bond Interest and Redemption	3,296,945	2,994,601	-302,344
	TOTAL	$ 15,937,763	$ 15,362,837	$ -574,926

SUMMARY OF RECEIPTS AND EXPENDITURES
FISCAL YEAR 1963-64

RECEIPTS

	BUDGET	REVENUE	-UNDER, OVER
Revenue from Sale of Water	$ 16,164,300	$ 16,388,358	$ 224,058
New Installations	160,000	193,582	33,582
Rents, including Commissions	425,000	454,369	29,369
Interest	93,500	109,958	16,458
Sale of Walnuts and Other Crops	30,000	28,607	-1,393
Miscellaneous Revenue	26,100	34,144	8,044
TOTAL GROSS REVENUE	$ 16,898,900	$ 17,209,018	$ 310,118

EXHIBIT - A
SAN FRANCISCO WATER DEPARTMENT
BALANCE SHEET
June 30, 1964

ASSETS AND OTHER DEBITS

UTILITY PLANT			
Water Plant in Service		$124,807,983.52	
Less Reserve for depreciation		43,164,303.64	$81,643,679.88
Construction Work in Progress			13,147,363.53
TOTAL UTILITY PLANT			94,791,043.41
CURRENT AND ACCRUED ASSETS			
Cash		10,890,219.64	
Accounts Receivable	$ 1,733,634.94		
Less Reserve for Uncollectible Accounts	12,000.00	1,721,634.94	
Notes Receivable		4,737.39	
Interfund Accounts Receivable		70,455.18	
Material and Supplies		553,083.46	
Pre-Payments		5,477.02	
TOTAL CURRENT AND ACCRUED ASSETS			13,245,607.63
DEFERRED DEBITS			
Budget Allocations to other Depts.		-0-	
Work in Progress		52,010.79	
Suspense Debits		663,703.70	
Other Deferred Debits		126.00	
Encumbrances (Contra)		2,616,149.80	
TOTAL DEFERRED DEBITS			3,331,990.29
TOTAL ASSETS AND OTHER DEBITS			$111,368,641.33

LIABILITIES & OTHER CREDITS

LONG TERM DEBT		
Bonds		$ 20,358,904.00
CURRENT & ACCRUED LIABILITIES		
Accounts Payable	$ 2,118,564.32	
Interfund Accounts Payable	182,501.48	
Matured Long-Term Debt	4,000.00	
Matured Interest	7,605.00	
Customer's Deposits	44,778.73	
Interest Accrued	157,500.00	
TOTAL CURRENT & ACCRUED LIABILITIES		2,514,949.53
DEFERRED CREDITS		
Suspense Credits	47,512.35	
Advances for Construction	224,259.54	
Orders for Work - Cash Advances	214,983.95	
Orders for Work - Other Departments	29,846.30	
Orders for Work - Service Orders	-0-	
Orders for Work - Stock Manufacture	26,977.31	
Rental Deposits & Payments made in advance	11,565.00	
Orders for Work - Accounts Receivable	244,206.30	
TOTAL DEFERRED CREDITS		799,350.75
RESERVE		
Reserve for Encumbrances	2,616,149.80	
Injuries and Damages Reserve	73,151.92	
Reserve for Refunds	128,287.21	
Funded - 68,337.52		
Unfunded - 59,949.69		
Reserve for Contractors Damage Claims	47,531.15	
Reserve for unpaid Revolving Fund Checks	2,256.86	
TOTAL RESERVES		2,867,376.94
SURPLUS		
Earned Surplus		84,828,060.11
TOTAL LIABILITIES AND OTHER CREDITS		$111,368,641.33

EXHIBIT - B

SAN FRANCISCO WATER DEPARTMENT

COMPARATIVE INCOME STATEMENT

TWELVE MONTHS ENDING JUNE 30, 1964

TITLE	Fiscal Year 1963-1964	Fiscal Year 1962 - 1963	1963-1964 Increase (Decrease)	March 3, 1930 to June 30, 1964
OPERATING INCOME				
Sale of Water	$17,872,494.99	$16,705,251.90	$ 1,167,243.09	$368,767,857.03
OPERATING REVENUE DEDUCTIONS				
Operating Expenses	7,195,450.69	6,534,409.47	661,041.22	110,214,931.31
Purchase of Water	4,500,000.00	5,000,000.00	(500,000.00)	76,546,061.92
Depreciation	1,557,505.36	1,514,736.15	42,769.21	38,087,651.71
Taxes - Actual	1,012,670.01	991,783.48	20,886.53	16,632,274.08
TOTAL OPERATING REVENUE DEDUCTIONS	$14,265,626.06	$14,040,929.10	$224,696.96	$241,480,919.02
UTILITY OPERATING INCOME	3,606,868.93	2,664,322.80	942,546.13	127,286,938.01
OTHER INCOME	1,143,905.29	858,457.47	285,447.82	13,330,728.50
GROSS INCOME	4,750,774.22	3,522,780.27	1,227,993.95	140,617,666.51
INCOME DEDUCTIONS	438,382.14	511,209.36	($ 72,827.22)	44,739,989.01
NET INCOME TRANSFERRED TO EARNED SURPLUS	4,312,392.08	3,011,570.91	1,300,821.17	95,877,677.50

Rents - Including Share Crops	$429,513.57
Collections from Damage Claims	10,000.96
Interest Revenue	109,958.03
Walnut Orchard	31,227.94
House Rent	5,882.50
Fixed Asset Sales	287,229.78
Miscellaneous	270,092.51
	$1,143,905.29

Non-Operating Revenue Deduc.	75,695.77
Interest on long-term debt	362,686.37
	$438,382.14

EXHIBIT "C" - SURPLUS

SAN FRANCISCO WATER DEPARTMENT

June 30, 1964

SURPLUS - JUNE 30, 1963	$ 80,734,597.15
ADD:	
Net Income for Twelve Months ending June 30, 1964	4,312,392.08
Transfer from 1947 Hetch Hetchy Bond Fund	45,564.08
DEDUCT:	
Adjustment of June 30, 1963 Surplus	176,606.27
Property Adjustment of 1963 Asset Survey	87,886.93
SURPLUS - June 30, 1964	$ 84,828,060.11

EXHIBIT "D"

COMPOSITION OF SURPLUS - CONDENSED

June 30, 1964

INITIAL SURPLUS - MARCH 3, 1930		$ 4,152,652.24		
Amortization on Contribution (Spring Valley)		100,000.00		
Valuation of Municipal Water Works		$ 4,252,652.24		
LESS: Additional Allowance for depreciation, March 1, 1920 to March 3, 1930		2,327,916.67	$ 1,924,735.57	
ADDITIONS:				
Net Income - March 3, 1930 to June 30, 1964		$ 95,877,677.50		
Miscellaneous and Year to Year Adjustments		5,378,986.82		
Contributions from Hetch Hetchy Power Division		409,471.11		
Contributions from 1947 Hetch Hetchy Water Bond Fund		290,516.71	101,956,652.44	
Grants Earned on Federal Public Works Project			2,358,987.60	
Year to Year - Addition to Surplus - 1964			1,669,481.49	$107,909,857.10
DEDUCTIONS:				
Contributed to General Fund			$15,992,457.24	
Contributed to Hetch Hetchy Water Supply			4,466,014.40	
Lands contributed to City and County of San Francisco for Streets and Boulevards			172,564.67	
Excess of adjusted book value of plant appraisal, December 31, 1937	$ 1,990,474.91			
Excess of adjusted book value of plant appraisal, June 30, 1953	188,291.42	$2,178,766.33		
LESS: Adjusted Book Value of Plant Appraisal, June 30, 1948		83,864.03		
ADD: Adjusted Book Value of Plant Appraisal, June 30, 1963		87,886.93		
" " " " " " June 30, 1958		91,365,18		
Adjustment of June 30, 1963 Surplus		176,606.27	2,450,760.68	23,081,796.99
SURPLUS - June 30, 1964				$ 84,828,060.11

EXHIBIT - "E"

SAN FRANCISCO WATER DEPARTMENT

COMPARATIVE INCOME STATEMENT

June 30, 1964

TITLE	FISCAL YEAR 1963 - 1964	FISCAL YEAR 1962 - 1963	1963 - 1964 INCREASE (DECREASE)	MARCH 3, 1930 to JUNE 30, 1964
OPERATING INCOME				
Sale of Water				
Water Sales - San Francisco	$ 9,570,980.38	$ 9,264,784.83	$ 306,195.55	
Water Sales - Outside San Francisco	7,062,620.22	6,320,314.50	742,305.72	
Water Sales - Municipal Departments - Actual	86,651.37	73,354.05	13,297.32	
Water Sales - Municipal Departments - Comparison	1,152,243.02	1,046,798.52	105,444.50	
TOTAL WATER SALES	$17,872,494.99	$16,705,251.90	$1,167,243.09	$368,767,857.03
OPERATING REVENUE DEDUCTIONS				
Source of Supply				
Operation, Supervision and Engineering	$ 66,257.60	$ 70,126.62	($ 3,869.02)	
Operation, Labor and Expense	410,980.25	392,597.50	18,382.75	
Miscellaneous Expenses	1,137.13	2,711.81	(1,574.68)	
Maintenance, Supervision and Engineering	-0-	-0-	-0-	
Maintenance of Structures and Improvements	196,021.33	219,552.07	(23,530.74)	
Maintenance of Collecting and Impounding Reservoirs	103,213.84	100,941.63	2,272.21	
Maintenance of Lake, River and other intakes	69.75	-0-	69.75	
Maintenance of Springs and Tunnels	-0-	-0-	-0-	
Maintenance of Wells	509.19	777.26	(268.07)	
Maintenance of Supply Mains	87,604.44	47,291.87	40,312.57	
Maintenance of other source of Supply Plant	13,303.38	5,564.42	7,738.96	
TOTAL SOURCE OF SUPPLY EXPENSES	$879,096.91	$839,563.18	$39,533.73	$13,015,537.55
Pumping Expenses				
Pumping Labor and Expenses	$ 102,379.65	$ 95,154.33	$ 7,225.32	
Miscellaneous Supplies and Expense	514.90	716.76	(201.86)	
Fuel or Power Purchased for Pumping	259,881.46	235,883.22	23,998.24	
Maintenance, Supervision and Engineering	-0-	-0-	-0-	
Maintenance of Structures and Improvements	21,134.52	22,054.60	(920.08)	
Maintenance of Primary Pumping Equipment	114.94	89.37	25.57	
Maintenance of Pumping Equipment	23,456.68	23,091.50	365.18	
Gardening	4,901.59	4,101.58	800.01	
TOTAL PUMPING EXPENSES	$412,383.74	$381,091.36	$31,292.38	$10,474,021.65
Purification Expense Accounts				
Operation, Supervision and Engineering	$ 58,583.25	$ 52,015.73	$ 6,567.52	
Operation, Labor and Expenses	181,877.60	156,568.22	25,309.38	
Miscellaneous Expenses	12.25	13.35	(1.10)	
Supplies and Expenses	179,080.89	141,436.15	37,644.74	
Maintenance, Supervision and Engineering	40.40	81.84	(41.44)	
Maintenance of Structures and Improvements	25,028.29	5,215.60	19,812.69	
Maintenance of Water Treatment Equipment	6,349.38	10,163.95	(3,814.77)	
TOTAL PURIFICATION EXPENSES	$450,971.86	$365,494.84	$85,477.02	$4,517,180.06

EXHIBIT "E" (Cont'd)

SAN FRANCISCO WATER DEPARTMENT

COMPARATIVE INCOME STATEMENT

June 30, 1964

TITLE	FISCAL YEAR 1963 - 1964	FISCAL YEAR 1962 - 1963	1963-1964 INCREASE (DECREASE)	March 3, 1930 to JUNE 30, 1964
OPERATING REVENUE DEDUCTIONS - Continued				
Transmission and Distribution Accounts				
Operation, Supervision and Engineering	16,[illegible]	[illegible]	[illegible]	
Storage Facilities Expenses	10,1[illegible]	9,450.[illegible]	[illegible]	
Transmission and Distribution Lines Expenses	162,629.7[illegible]	143,442.05	19,187.72	
Meter Expenses	193,107.25	171,438.80	21,668.45	
Customer Installations Expenses	263,198.35	219,725.02	43,473.33	
Miscellaneous	4,647.10	12,500.04	(7,852.94)	
Operating Expenses - Bryant Street and Newcomb Street	107,376.76	95,383.69	11,993.07	
Maintenance, Supervision and Engineering	4,616.17	-0-	4,6[illegible].17	
Maintenance of Structures and Improvements	124,278.77	103,435.64	20,8[illegible].13	
Maintenance of Reservoirs and Tanks	57,953.58	22,738.13	35,215.45	
Maintenance of Transmission Lines and Canals	92,679.33	57,031.98	35,647.45	
Maintenance of Services	543,846.07	488,588.82	55,257.25	
Meter Expenses - Maintenance	-0-	-0-	-0-	
Maintenance of Miscellaneous Plant	29,936.21	21,132.11	8,804.10	
Maintenance of Distribution Mains, Canals, etc.	493,248.41	429,977.75	63,270.66	
Reconditioning of Salvage Materials	(2,229.45)	(2,015.37)	(214.08)	
Maintenance of Services - 20" Nozzle C. S.	-0-	68.28	(68.28)	
TOTAL TRANSMISSION AND DISTRIBUTION ACCOUNTS	$2,253,882.62	$1,909,773.28	$344,109.34	$25,287,669.48
Customers' Accounts Expenses				
Meter Reading Expenses	$ 95,888.04	$ 89,329.96	$ 6,558.08	
Customer Records and Collection Expenses	152,872.48	149,649.61	3,222.87	
Miscellaneous Customer Accounts Expenses	146,221.94	147,732.96	(1,511.02)	
Inspection and Service	104,807.95	97,538.46	7,269.49	
Bookkeeping Department	235,747.09	223,394.36	12,352.73	
Shipping	22,140.68	31,549.25	(9,408.57)	
TOTAL CUSTOMERS' ACCOUNTS EXPENSES	$757,678.18	$739,194.60	$18,483.58	$17,294,833.42
Administrative and General				
Salaries - General Officers	$ 29,904.68	$ 56,557.61	$(26,652.93)	
Salaries - General Office	128,348.40	120,239.17	8,109.23	
General Engineering	199,831.00	191,057.61	8,773.39	
Resources and Planning	39,062.97	35,499.23	3,563.74	
Office Supplies and Other Expenses	31,619.18	33,785.23	(2,166.05)	
Telephone Service	55,483.13	55,863.42	(380.29)	
Mason Street Operating Expense	62,066.88	66,165.50	(4,098.62)	
Municpal Taxes - Comparison	1,152,243.02	1,046,798.52	105,444.50	
Outside Services Employed	-0-	4,790.01	(4,790.01)	
Insurance - Compensation	80,138.54	71,844.96	8,293.58	
Insurance - Other	13,078.37	13,502.07	(423.70)	
Injuries and Damages	25,761.42	19,017.37	6,744.05	
Pensions	184,550.25	184,480.40	69.85	
Social Security	85,802.73	74,666.36	11,136.37	
Electronic Data Program	147,769.62	97,407.50	50,362.12	
Public Utilities Commission	115,991.67	112,082.12	3,909.55	
Hydrography	2,500.00	2,300.00	200.00	
Maintenance to Telephone System	26,617.86	29,265.15	(2,647.29)	
Maintenance to General Structures	-0-	108.90	(108.90)	
Maintenance to Mason Street Building	4,397.16	6,858.39	(2,461.23)	
Maintenance to Radio System	1,982.62	2,145.78	(163.16)	
Inventory Expense - Maintenance	(1,644.08)	15,473.97	(17,118.05)	
Maintenance of Non-Operative Property	71.63	1,124.97	(1,053.34)	
Miscellaneous Maintenance	28,192.32	13,765.96	14,426.36	
TOTAL ADMINISTRATIVE AND GENERAL	$2,413,769.37	$2,254,800.20	$158,969.17	$38,691,704.49

EXHIBIT "E" (Cont'd.)
SAN FRANCISCO WATER DEPARTMENT
COMPARATIVE INCOME STATEMENT
JUNE 30, 1964

TITLE	FISCAL YEAR 1963 - 1964	FISCAL YEAR 1962 - 1963	1963-1964 INCREASE (DECREASE)	MARCH 3, 1930 TO JUNE 30, 1964
OPERATING REVENUE DEDUCTIONS (Cont'd.)				
Miscellaneous Expenses				
Uncollectible Water Bills	$ 19,728.58	$ 33,376.98	$ (13,648.40)	
Provision for Contingent Refunds	7,939.43	11,115.03	(3,175.60)	
Other Operting Expenses - Fixed Charges	-0-	-0-	-0-	
Undistributed Operating Expenses	-0-	-0-	-0-	
TOTAL MISCELLANEOUS EXPENSES	$27,668.01	$44,492.01	($16,824.00)	$933,984.66
TOTAL OPERATING REVENUE DEDUCTIONS	$7,195,450.69	$6,534,409.47	$661,041.22	$110,214,931.31
OPERATING EXPENSES				
Purchase of Water	$4,500.000.00	$5,000.000.00	($500,000.00)	
Depreciation	1,557,505.36	1,514,736.15	42,769.21	
Taxes - Actual	1,012,670.01	991,783.48	20,886.53	
TOTAL OPRATING EXPENSES	$7,070,175.37	$7,506,519.63	($436,344.26)	$131,265,987.71
UTILITY OPERATING INCOME	$3,606,868.93	$2,664,322.80	$942,546.13	$127,286,938.01
OTHER INCOME				
Rentals, including Crop Shares	$429,513.57	$398,382.47	$31,131.10	
Walnut Orchard Sales	31,227.94	27,680.69	3,547.25	
Miscellaneous	285,975.97	243,958.20	42,017.77	
Interest Earned	109,958.03	104,999.99	4,958.04	
Sales of Real Estate and Fixed Assets	287,229.78	83,436.12	203,793.66	
TOTAL OTHER INCOME	$1,143,905.29	$858,457.47	$285,447.82	$13,330,728.50
GROSS INCOME	$4,750,774.22	$3,522,780.27	$1,227,993.95	$140,617,666.51
INCOME DEDUCTIONS				
Agricultural Division	$37,478.18	$30,256.74	$7,221.44	
Walnut Orchard Expense	12,212.64	15,209.61	(2,996.97)	
Miscellaneous Expense	26,004.95	41,986.41	(15,981.46)	
Interest on Long-Term Debt	362,686.37	423,756.60	(61,070.23)	
TOTAL INCOME DEDUCTIONS	$438,382.14	$511,209.36	(72,827.22)	$44,739,989.01
NET INCOME TRANSFERRED TO SURPLUS	$4,312,392.08	$3,011,570.91	$1,300.821.17	$95,877,677.50

CHARGES OF NON-PAYING MUNICIPAL ACCOUNTS
FOR THE FISCAL YEARS 1962-1963 and 1963-1964

	1962-1963	1963-1964
Hydrants	$ 447,970.00	$ 450,130.00
Fire Boats	133.29	128.76
Fire Department	22,688.80	23,154.29
Police Department	1,341.71	1,415.03
Recreation and Parks	153,852.54	181,180.56
Golden Gate Park	48,728.53	61,146.47
Libraries	2,341.63	2,523.17
Opera House and War Memorial Bldg.	1,880.61	2,047.59
Memorial Museum	735.41	1,322.05
Palace of the Legion of Honor	309.90	278.74
Aquarium	3,465.92	4,920.69
Youth Guidance Center	4,451.43	4,908.73
Adult Guidance Center	439.23	599.23
Purchaser of Supplies	619.39	607.39
Exposition Auditorium and Brooks Hall	1,967.82	1,750.68
City Planning Commission	127.32	127.32
Dept. of Finance & Records T.O. May 1964		7.04
Dept. of Public Works (Public Bldgs.)	145,614.38	147,161.98
Building Repairs	-------	-------
Street Cleaning	16,186.82	15,760.32
Street Work and Sewers	108.89	237.84
Parked Areas and Public Streets	6,742.60	7,499.97
Sidewalk Repairs	39.33	-----
Department of Electricity	528.61	549.15
Department of Public Health	22,703.88	24,238.79
" " " "	1,746.22	2,071.50
Laguna Honda Hospital	16,538.08	16,610.14
Public Welfare	347.64	794.29
Municipal Railway	7,636.58	8,978.06
" " Track Repairs	28.64	10.72
Disaster Council	127.32	127.32
Water Department	1,988.65	2,831.21
Total San Francisco	$ 911,391.17	$ 963,119.03
County Jail	33,793.61	29,239.11
Hassler Health Farm	5,891.14	6,060.78
International Airport	23,380.42	21,151.71
Public Welfare	1,734.93	1,759.50
Water Department	70,607.25	130,912.89
Total Suburban	$ 135,407.35	$ 189,123.99
Grand Total	$ 1,046,798.52	$ 1,152,243.02
Net Increase		$ 105,444.50

CHARGES OF PAYING MUNICIPAL ACCOUNTS

FOR THE FISCAL YEARS 1962-1963 and 1963-1964

	1962-1963	1963-1964	INCREASE -DECREASE
SCHOOLS	$ 72,340.55	$ 85,630.36	$ 13,289.81
CHILD WELFARE CENTERS	1,013.50	1,021.01	7.51
TOTALS	$ 73,354.05	$ 86,651.37	$ 13,297.32

BOND REDEMPTION AND INTEREST

WATER DEPARTMENT

	Redemption				Interest				Total Redemption plus Interest
	Spring Valley 1928	H.H. Water Service 1947	Muni Water System 1961	Total	Spring Valley 1928	H.H. Water Service 1947	Muni Water System 1961	Total	
1963-64	$ 1,000,000	$ 924,505	$ 306,783	$ 2,231,288	$ 315,000	$ 52,618.70	$ 325,464.85	$ 693,083.55	$ 2,924,371.55
1964-65	1,000,000	920,328	306,783	2,227,111	270,000	36,585.48	336,451.25	643,036.73	2,870,147.73
1965-66	1,000,000	225,328	306,783	1,532,111	225,000	23,676.00	317,954.25	566,630.25	2,098,741.25
1966-67	1,000,000	132,682	388,174	1,520,856	180,000	15,174.62	301,627.25	496,801.87	2,017,657.87
1967-68	1,000,000	132,682	686,609	1,819,291	135,000	7,994.39	283,432.25	426,426.64	2,245,717.64
1968-69	1,000,000	91,882	686,609	1,778,491	90,000	814.25	267,537.75	358,352.00	2,136,843.00
1969-70	1,000,000		686,609	1,686,609	45,000		251,643.25	296,643.25	1,983,252.25
1970-71			686,609	686,609			235,747.75	235,747.75	922,356.75
1971-72			688,696	688,696			219,853.25	219,853.25	908,549.25
1972-73			688,696	688,696			202,180.75	202,180.75	890,876.75
1973-74			688,696	688,696			184,509.25	184,509.25	873,205.25
1974-75			688,696	688,696			166,836.75	166,836.75	855,532.75
1975-76			688,696	688,696			149,164.25	149,164.25	837,860.25
1976-77			688,696	688,696			131,121.75	131,121.75	819,817.75
1977-78			688,696	688,696			111,719.50	111,719.50	800,415.50
1978-79			686,609	686,609			92,316.25	92,316.25	778,925.25
1979-80			686,609	686,609			72,977.00	72,977.00	759,586.00
1980-81			686,609	686,609			53,636.75	53,636.75	740,245.75
1981-82			686,609	686,609			34,297.50	34,297.50	720,906.50
1982-83			540,522	540,522			14,957.25	14,957.25	555,479.25
Due After 6/30/63	$ 7,000,000	$ 2,427,407	$12,162,789	$21,590,196	$1,260,000	$136,863.44	$3,753,428.85	$5,150,292.29	$26,740,488.29

ORIGINAL AMOUNTS AND INTEREST RATES

$41,000,000	$12,500,000	$12,229,572	$65,729,572	4½%	1¼ to 6%	2½ to 6%

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FOR
APPENDIX TO
REPORT OF SAN FRANCISCO WATER DEPARTMENT

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Due to necessary conservation of manpower in the Accounting Division records needed to compile Tables 15, 16, 17 and 19 were not maintained.

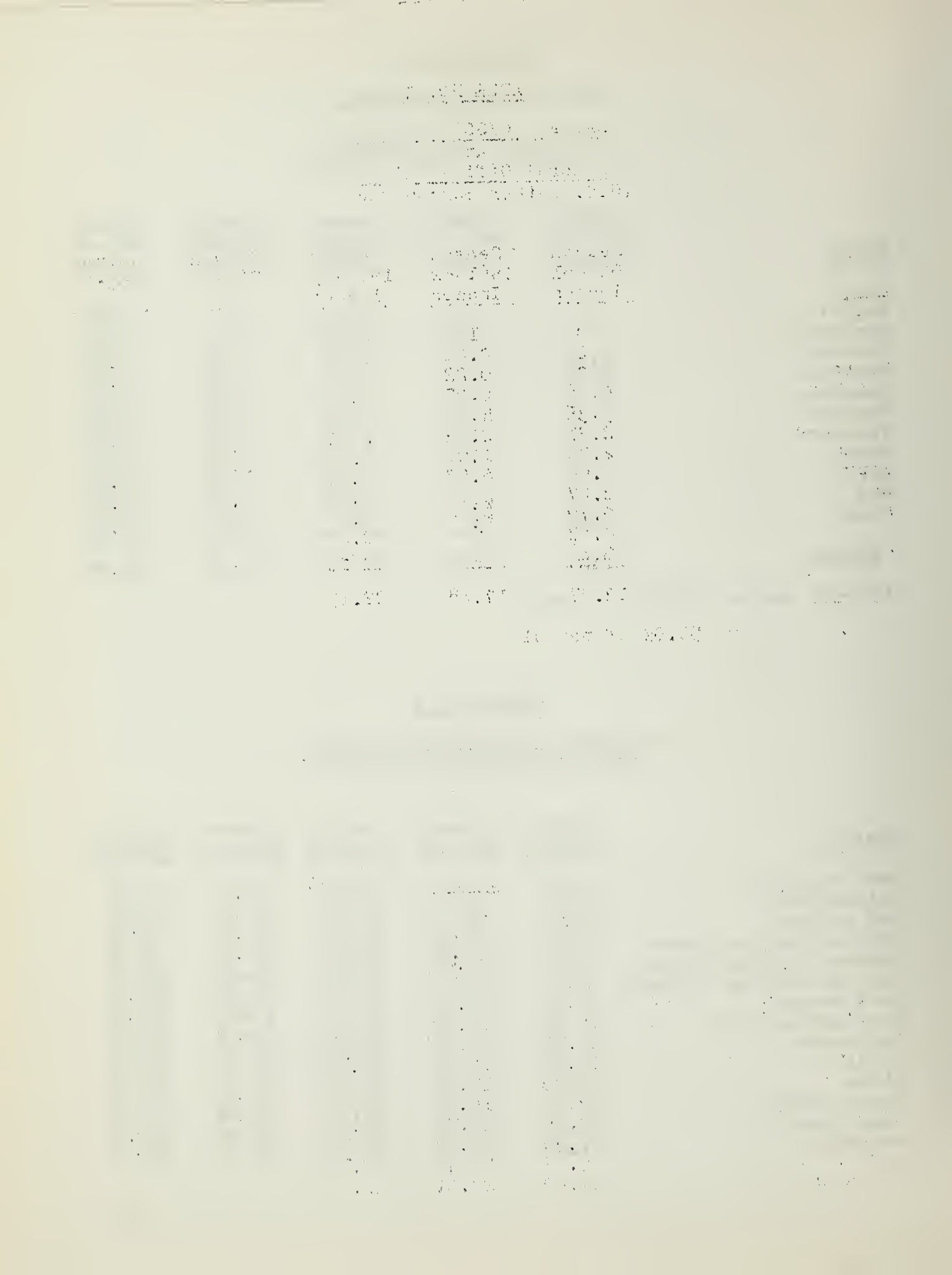

TABLE NO. 4

RESERVOIR STORAGE
(Exclusive of Hetch Hetchy Sources)

MILLION GALLONS

	1960-61		1961-62		1962-63		1963-64	
	Max. July 1	Min. Nov. 5	Max. April 9	Min. Nov. 18	Max. May 22	Min. Jan. 26	Max. July 1	Min. Jan. 13
Calaveras	19,920	14,535	25,692	13,132	30,812	17,034	29,231	17,338
Crystal Springs	17,587	15,304	18,701	11,410	19,956	15,567	18,860	14,698
San Andreas	5,608	5,069	5,692	5,374	5,789	4,934	5,941	4,858
Pilarcitos	919	700	878	744	944	747	942	744
Lake Merced	2,061	2,069	2,124	1,912	2,316	1,996	1,973	1,842
City Reservoirs	302	325	347	402	368	344	366	389
TOTALS	46,397	38,002	53,434	32,974	60,185	40,622	57,313	39,869

TABLE NO. 5

WATER DRAWN FROM HETCH HETCHY AND AUXILIARY SOURCES

MILLION GALLONS

	1960-61	1961-62	1962-63	1963-64
Hetch Hetchy Supply	53,620	56,649	47,064	50,299
Pleasanton Wells*	#	547	317	475
Miscellaneous**	#	1,749	2,346	1,943
TOTALS	53,620	58,945	49,727	52,717

#Complete records for fiscal years prior to 1961-62 not available.

*All water drawn from the Pleasanton Wells since April 1949 has been used within the Pleasanton area.

**Sources are: Pumping from Alameda Creek; Sunol Filters; Recreation-Park Department pumping at Lake Merced and Golden Gate Park, amount not available prior to 1961-62.

TABLE NO. 6

SOURCE OF WATER CONVEYED
TO THE PENINSULA DIVISION
YEARLY AVERAGE, MILLION GALLONS DAILY

	1960-61	1961-62	1962-63	1963-64
Sunol Filters	None	1.8	4.0	2.4
Calaveras Reservoir	12.9	12.4	24.0	40.6
Hetch Hetchy Water Supply	135.8	142.7	115.8	121.5
TOTALS	148.7	156.9	143.8	164.5

TABLE NO. 7

WATER DELIVERED THROUGH PIPELINES

Water Transported into San Francisco Consumption Area (1963-64)

San Andreas 54" Pipeline	27.8 M.G.D.
Baden-Merced Branch 30" P/L	5.9 " " "
Crystal Springs 44" P/L	4.3 " " "
" " 60" P/L	23.0 " " "
Sunset 60" P/L	43.9 " " "
" Supply S.A.Branch 60" P/L	0.3 " " "
Total San Francisco Consumption Area	105.2 M.G.D.

Water Transported to storage:

Crystal Springs to San Andreas	27.9 M.G.D.
Bay Division to Crystal Springs	113.3 M.G.D.

TABLE NO. 8

WATER DELIVERED
AT THE CONSUMERS' METERS

SAN FRANCISCO DISTRICT

	1960-61	1961-62	1962-63	1963-64
Average Active Accounts	154,200	154,695	155,358	155,552
Number on June 30	154,032	155,358	155,699	155,345
Metered Delivery (M.C.F.)				
Residential	1,499.9	1,549.1	1,487.0	1,571.3
Commercial	2,030.1	2,098.3	2,071.4	2,104.9
Docks and Shipping	38.3	41.6	31.9	31.2
Municipal - Actual	26.9	27.4	24.1	30.6
Municipal - Comparisons	258.7	276.9	247.9	277.5
Total (M.C.F.)	3,853.9	3,993.3	3,862.3	4,015.5
Average (M.G.D.)	79.2	81.8	79.1	82.3

SUBURBAN DISTRICT

	1960-61	1961-62	1962-63	1963-64
Average Active Accounts	681	687	668	680
Number on June 30	663	711	682	677
Metered Delivery (M.C.F.)				
Regular Rates	156.3	174.5	149.9	192.9
Civil Divisions for Resale	1,969.2	2,246.8	2,533.3	2,906.1
Private Utilities " "	1,215.1	1,350.6	1,206.6	1,330.5
S. F. Municipal-Comparison	67.5	77.9	70.7	102.7
Total (M.C.F.)	3,408.1	3,849.8	3,960.5	4,532.2
Average (M.G.D.)	70.0	78.9	81.2	92.9

TOTAL SYSTEM

Metered Delivery (M.C.F.)	7,262.0	7,843.1	7,822.8	8,547.7
Average (M.G.D.)	149.2	160.7	160.3	175.2

TABLE NO. 9

AVERAGE DAILY CONSUMPTION SINCE 1865
CONSUMPTION IN MILLION GALLONS PER DAY

Venturi Meter Records

YEAR	M.G.D.	YEAR	M.G.D.	YEAR	M.G.D.	YEAR	M.G.D.
1865	2.4	1885	17.0	1905	34.9	1925	42.6
1870	6.0	1890	20.4	1910	35.6	1928	50.1
1875	11.7	1895	19.9	1915	42.6	1929	52.1
1880	12.7	1900	25.5	1920	36.2	1930	52.1

Note: At noon on March 3, 1930 the San Francisco Water Department acquired title to the operative properties of the Spring Valley Water Company.

(Fiscal year begins on July 1 and ends June 30)

Fiscal Year	San Francisco	Sub-urban	Total System	Max. Day	Min. Day	Max. Month	Min. Month
1930-31	49.2	3.1	52.3	66.7	41.3	57.8	47.0
1931-32	49.3	2.8	52.1	65.6	39.6	59.4	47.5
1932-33	46.4	2.7	49.1	60.4	39.9	54.3	44.6
1933-34	47.3	2.6	49.9	64.3	39.1	53.7	45.1
1934-35	48.1	2.4	50.5	65.4	41.3	58.1	46.2
1935-36	52.3	2.5	54.8	68.0	43.0	62.1	50.3
1936-37	55.1	3.4	58.5	70.7	45.7	63.8	51.8
1937-38	53.3	5.0	58.3	72.4	46.7	65.4	53.4
1938-39	56.9	6.4	63.3	84.6	48.5	77.5	54.8
1939-40	59.6	9.0	68.6	89.5	51.6	76.6	60.9
1940-41	60.7	7.3	68.0	90.0	52.0	77.9	60.6
1941-42	63.5	7.7	71.2	94.5	53.1	85.7	61.7
1942-43	69.2	8.6	77.8	106.9	60.2	92.3	68.6
1943-44	76.1	11.4	87.5	109.9	70.4	101.1	76.8
1944-45	79.0	17.9	96.9	134.9	74.7	116.5	85.2
1945-46	83.7	17.2	100.9	131.9	72.9	115.3	88.0
1946-47	83.3	18.6	101.9	135.6	76.5	117.0	86.2
1947-48	81.3	19.7	101.0	138.3	74.2	122.6	88.0
1948-49	83.3	19.9	103.2	138.3	73.3	124.4	86.4
1949-50	83.1	19.6	102.7	139.1	73.8	120.7	88.0
1950-51	82.8	23.0	105.8	147.7	77.3	126.1	88.6
1951-52	82.9	26.2	109.1	154.0	77.6	130.8	92.1
1952-53	88.5	29.9	118.4	166.8	83.7	140.2	99.4
1953-54	89.7	35.2	124.9	197.0	88.0	157.3	107.2
1954-55	91.1	44.6	135.7	190.0	92.5	166.4	110.3
1955-56	91.3	47.8	139.1	217.5	83.0	176.7	112.8
1956-57	89.9	53.1	143.0	224.1	92.7	179.7	112.7
1957-58	94.0	46.5	140.5	211.3	85.3	185.8	111.6
1958-59	100.6	57.0	157.6	246.0	98.5	206.5	117.6
1959-60	104.4	63.4	167.8	274.0	101.7	217.6	126.0
1960-61	102.0	65.6	167.6	310.2	106.4	225.9	132.4
1961-62	105.2	70.2	175.4	289.3	99.3	229.9	128.8
1962-63	100.8	78.4	179.2	271.0	122.7	237.5	144.1
1963-64	106.2	90.5	196.7	304.7	128.4	251.6	151.2

NOTE: Water Department deliveries for consumption in the major inhabited portion of the northerly 47 square miles of San Mateo County are included in the figures in column headed "San Francisco" and are not included in the figures in column headed "Suburban" in Table No, 9.

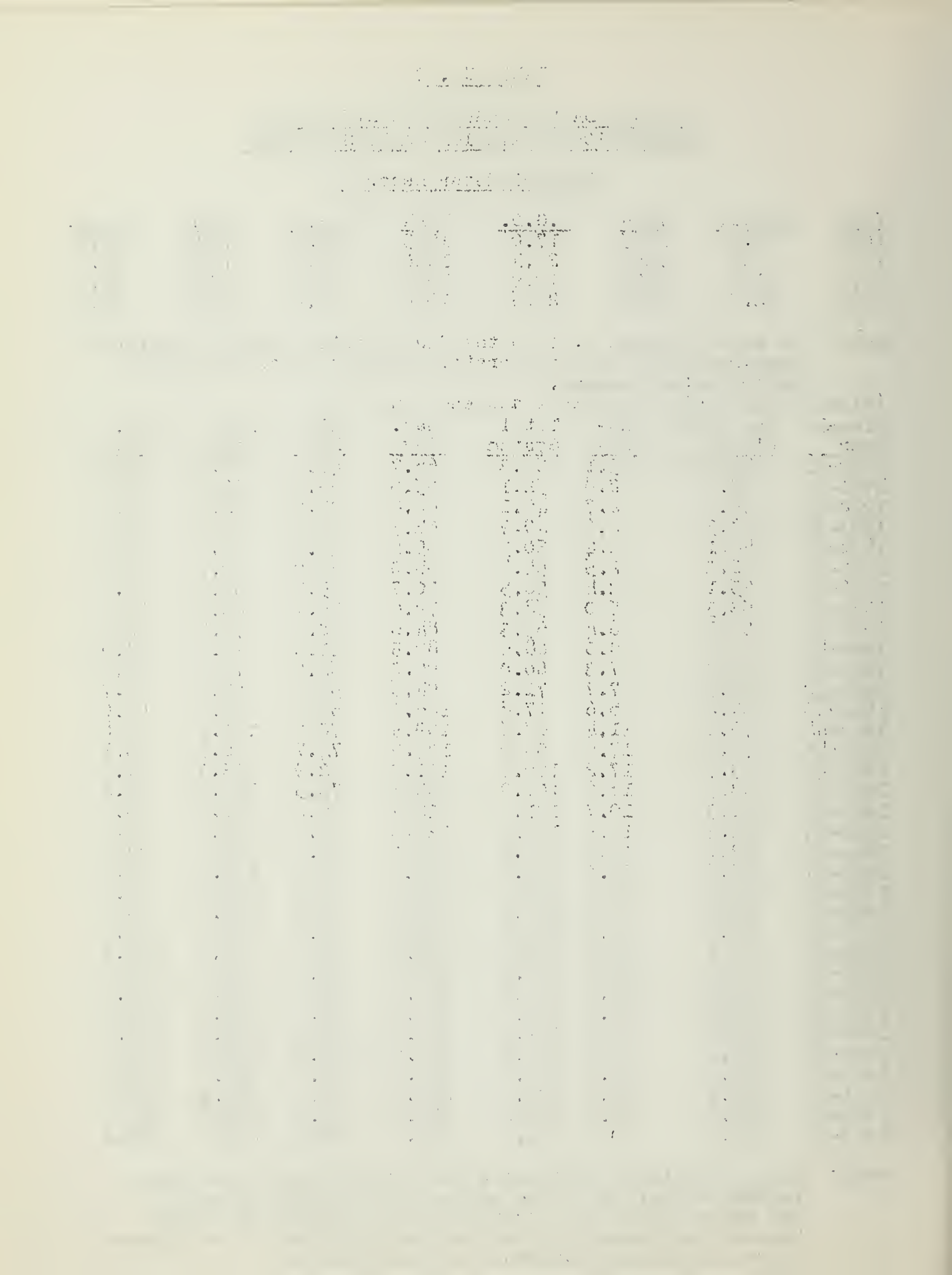

TABLE NO. 10

AVERAGE DAILY CONSUMPTION BY DISTRICTS

GALLONS

District	1962-63	1963-64	Increase+ or Decrease-	%Increase+ or Decrease-
Summit and Forest Hill	1,793,880	2,140,257	+ 346,377	+19.3
Stanford Heights	3,743,430	3,954,399	+ 210,969	+ 5.6
Sutro	9,812,521	12,319,563	+2,507,042	+25.5
Sunset	44,899,397	48,345,112	+3,445,715	+ 7.7
College Hill	10,261,704	9,043,265	-1,218,439	-11.9
University Mound	27,419,123	27,262,781	- 156,342	- 0.6
Merced Manor*	1,853,652	2,090,544	+ 236,892	+12.8
Sub-Total	99,783,707	105,155,921	+5,372,214	+ 5.4
Harding & GG Parks	986,301	1,098,360	+ 112,059	+11.4
Total City	100,770,008	106,254,281	+5,484,273	+ 5.4
Suburban	78,412,518	90,477,183	+12,064,665	+15.4
Total Entire System	179,182,526	196,731,464	+17,548,938	+ 9.8

*Merced Manor consumption not measured directly. Any inaccuracies would reflect in suburban and Sunset consumption.

TABLE NO. 11

PEAK DAY CONSUMPTION BY DISTRICTS

GALLONS

District	1961-62	1962-63	1963-64
Summit and Forest Hill	6,655,000	3,068,000	5,600,000
Stanford Heights	7,274,000	6,522,000	6,160,000
Sutro	13,526,000	13,195,000	16,900,000
Sunset	68,893,000	65,087,000	74,117,000
College Hill	13,733,000	15,511,000	16,927,000
University Mound	48,534,000	45,039,000	44,145,000
Merced Manor	4,691,000	3,632,000	4,278,000
Total City	145,858,000	138,203,000	143,521,000
Suburban	143,407,000	147,868,000	165,089,000
Total Entire System	289,265,000	271,031,000	304,705,000

TABLE NO. 12

METERS - NUMBER AND SIZE IN SERVICE
SAN FRANCISCO DISTRICT AS OF JUNE 30, 1964
(Compiled from Audit Sheets - May and June)

CLASS OF CONSUMERS:	5/8"	3/4"	1"	1½"	2"	3"	4"	6"	8"	12"	TOTAL
Revenue Producing:											
Commercial	17,445	1,360	3,310	2,887	4,872	41	251	481	402	1	31,050
Residential	120,933	4,452	1,601	277	17	-	-	-	-	-	127,280
Docks & Ship.	135	12	31	45	128	-	2	2	8	2	365
TOTAL	138,513	5,824	4,942	3,209	5,017	41	253	483	410	3	158,695
Non-Revenue Producing											
Commercial	988	14	43	30	49	4	11	11	5	-	1,155
Residential	930	25	8	-	-	-	-	-	-	-	963
Docks & Ship.	7	-	1	-	-	-	-	-	-	-	8
TOTAL	1,925	39	52	30	49	4	11	11	5	-	2,126
TOTALS:											
Commercial	18,433	1,374	3,353	2,917	4,921	45	262	492	407	1	32,205
Residential	121,863	4,477	1,609	277	17	-	-	-	-	-	128,243
Docks & Ship.	142	12	32	45	128	-	2	2	8	2	373
TOTAL	140,438	5,863	4,994	3,239	5,066	45	264	494	415	3	160,821

Total meters in service as of June 30, 1964			160,821
Less: Extra meters in 1,079 Batteries - (3,205 meters - 1,079)		2,126	
Extra meters in 24 Consolidations (68 meters - 24)		44	
Non-Revenue meters (temporarily shut off)		2,126	4,296
Number of Active Accounts as of June 30, 1964			156,525

NOTE: The above meter count includes 1,256 Fire Services. At dock and Shipping Office, portable meters used on hydrants as needed (not included above) 25 - 1½", 41 - 2" meters. At Union Plant of Bethlehem Shipbuilding Corp. 8 - 1½" meters.

PREVIOUS RECORDS	1959-60	1960-61	1961-62	1962-63	1963-64
Total Meters	158,561	159,077	159,812	160,317	160,821
Increase	596	516	735	505	504
Idle Meters	2,175	2,971	2,303	2,283	2,126

TABLE NO. 13

METERS - NUMBER AND SIZE IN SERVICE

SUBURBAN DISTRICT AS OF JUNE 30, 1964

(Compiled from Audit Sheets - May and June)

CLASS OF CONSUMERS:	5/8"	3/4"	1"	1½"	2"	4"	6"	8"	10"	12"	16"	TOTAL	*
Revenue Producing:													
Regular Rates	419	33	35	22	142	19	88	75	12	-	5	850	
Airport Use	12	6	14	12	22	2	3	8	1	1	-	81	
TOTAL	431	39	49	34	164	21	91	83	13	1	5	931	
Non-Revenue Producing:													
Regular Rates	1	2	1	-	1	1	-	1	-	-	-	7	
Airport Use	-	-	-	-	-	-	-	-	-	-	-	-	
TOTAL	1	2	1	-	1	1	-	1	-	-	-	7	
TOTALS													
Regular Rates	420	35	36	22	143	20	88	76	12	-	5	857	
Airport Use	12	6	14	12	22	2	3	8	1	1	-	81	
TOTAL	432	41	50	34	165	22	91	84	13	1	5	938	

Total:	Meters in service as of June 30, 1964		938
Less:	Extra meters in 68 Batteries and Consolidations - (322 meters - 68)	254	
	Non-Revenue meters (temporarily shut off)	7	261
	Number of Active Suburban Accounts as of June 30, 1964		677

NOTE: The above meter count includes 7 Automatic Sprinklers for fire purposes

PREVIOUS RECORDS:	1959-60	1960-61	1961-62	1962-63	1963-64
Total Meters	1,017	971	992	963	938
Increase; Decrease-	-14	-46	21	-29	-25
Idle Meters	16	8	8	13	7

TABLE NO. 14

OFFICIAL METER TESTS

During Fiscal Year Ending June 30, 1964

PERCENTAGE OF VARIATION

Percentage	0	.2	.3	.5	1	1.5	2	2.7	3	5	Number Tested Total	Ratio
Fast	-	-	-	-	-	-	-	-	-	-	0	
Slow	-	-	-	-	-	-	-	-	-	-	0	
TOTAL	-	-	-	-	-	-	-	-	-	-	0	

PREVIOUS TOTALS

YEAR												
1960	-	-	1	1	-	-	-	-	1	-	3	
1961	-	-	-	-	-	-	-	-	-	1	1	
1962	-	1	-	1	1	-	-	1	-	-	4	
1963	-	-	-	-	-	-	-	-	-	-	0	

Refunds	1963-64	Account	of	over-registration-		0.00
Increases	"	"	"	"	under-registration-	0.00

TABLE NO. 18

STREET MAIN TAPS AND SERVICE CONNECTIONS RECORD

San Francisco District June 30, 1964

TAPS ON STREET MAINS

	Wharf	3/4"	1"	1½"	2"	3"	4"	6"	8"	10"	12"	16"	TOTALS
June 30, 1963	367	158,655	15,276	4,976	3,358	1,005	695	709	439	0	19	2	185,421
ADD 1963-64	8	- 383	1,314	150	139	48	48	35	13	1	0	0	1,373
June 30, 1964	375	158,272	16,590	5,126	3,497	1,053	743	664	452	1	19	2	186,794

SERVICE CONNECTIONS

ADD Services connected to street mains, as above	186,794
"Distributors", being 1 or more additional meter conn. to service pipes	5,103
TOTAL connections of record	191,897
Disconnected services	33,246
Net metered live services consisting of 158,695 active meters; less 2,170 extra meters in batteries, plus 2,126 services temporarily shut off	158,651

Previous Records:	1960-61	1961-62	1962-63
Active	156,106	157,509	158,034
Shut off	2,971	2,303	2,283
TOTALS	159,077	159,812	160,317
Less extra battery meters	2,074	2,151	2,156
NET	157,003	157,661	158,161

SERVICE INSTALLATIONS ORDERED

Fiscal Year 1963-64

DISTRICT:	Taps	Distributors	TOTALS
Richmond District	129	0	129
Sunset	128	0	128
North Market & Western Add'n	330	0	330
South Market & Twin Peaks	595	0	595
Waterfront	7	0	7
TOTALS	1,189	0	1,189

Previous Years	Taps	Distributors	TOTALS
1960-61	1,522	551	2,073
1961-62	1,267	310	1,577
1962-63	1,368	24	1,392

TABLE NO. 20
RECORD OF CONSUMERS' INQUIRIES RELATING TO WATER QUALITY

COMPARISON OF INQUIRIES RECEIVED BY DISTRICTS

	1960-61	1961-62	1962-63	1963-64
Francisco Street	0	0	0	0
Stanford Heights	29	38	41	30
Sutro Reservoir	60	28	48	32
Sunset Reservoir	106	129	104	83
Potrero Heights	2	1	5	4
Sunset-Lombard	1	5	3	2
College Hill	30	15	29	30
Merced Manor	11	10	15	14
University Mound	41	39	33	22
Forest Hill Tanks	0	1	0	0
Keith Street Tank	1	0	1	0
Summit	10	7	8	10
Crocker-Amazon Tank	-	5	1	1
Mt. Davidson Tank	-	1	1	1
Silver Avenue	1	3	1	0
Wilde Avenue	4	4	3	7
Lincoln Park	-	-	1	0
Palo Alto Pump Station	-	-	-	1
TOTALS	296	286	294	237

TABLE NO. 21
RECORD OF NO WATER, NOISE, ETC.

(a) Those for which the Department was responsible:

	1960-61	1961-62	1962-63	1963-64
Service or main broken	14	4	6	4
S/O at main or meter	4	4	23	5
District temp'y. S/D	0	0	0	0
Service choked	0	4	10	12
TOTALS	18	12	39	21
Percentage	11.8%	12.4%	41.9%	22.6%

(b) Those for which the Consumers were responsible:

Choked House Pipes	14	10	9	4
House Valve Closed	20	38	7	1
" " out of order	20	13	2	1
House Pipe Broken	34	15	34	65
False Reports	47	9	2	1
TOTALS	135	85	54	72
Percentage	88.2%	87.6%	58.1%	77.4%
TOTAL NO WATER	153	97	-	-
Noise	83	44	62	126
Miscellaneous	307	374	571	936

TABLE NO. 22

RECORD OF POOR SUPPLY

AND

LARGE BILL COMPLAINTS

	1960-61	1961-62	1962-63	1963-64
Meter Only:				
Too Small	30	69	132	87
Too Large	0	0	0	18
Service Only:				
Adequate	662	510	922	1,096
Inadequate	1,676	1,239	1,673	2,181
Meter and Service:				
Too Small	884	862	1,104	1,047
Housepiping:				
(Includes valve unless valve only is involved)				
Adequate	100	82	160	427
Inadequate	3,152	2,598	3,671	3,707
Resurveys:	1	25	383	0
Special Inspections:	879	783	693	252
Total Number of Inspections:	4,132	3,488	4,907	4,631
Large Bill Complaints:	7,457	7,756	6,035	8,004

TABLE NO. 23

LENGTH OF VARIOUS SIZES OF TRANSMISSION MAINS IN FEET

	16"	24"	28"	30"	33"	36"	37"	39"	42"	44"	48"	54"	57"
Alameda	395s					122,934							
Pleasanton				27,432									
Niles-Irvington										15,600			
Calaveras										30,570	1,045		
Bay Div'n #1									3,161s				6,821
" " #2									250r			6,066s	
" " #3													
Alameda Cr.Siphon													
C. S. #1		238								84,943		358	
C. S. #2				669					100			16,757	
Sunset & C.S. #3													
Sunset Pipeline												337	
San Andreas Br.of Sunset Pipeline													
San Andreas #1		31								26,587			
San Andreas #2												63,309	
Baden-Merced				31,890		2,260	1,560						
San Andreas Outlet Conn. Pipes				5,024								869	
Palo Alto						28,049							
Pilarcitos Aqued.			7,480		169	648				730			
Stone Dam "				501				1,814		2,106	2,894		
C.S. - S.A. "										30	916	492	
TOTAL	395	269	7,480	65,516	169	153,891	1,560	1,814	3,511	160,566	4,855	88,188	6,821

(continued)

s - submarine pipes
r - risers

TABLE NO. 23

LENGTH OF VARIOUS SIZES OF TRANSMISSION MAINS IN FEET (Cont'd)

	60"	61"	62"	66"	69"	72"	76"	78"	79"	90"	91"	Total Feet	Miles
Alameda												123,329	23.36
Pleasanton												27,432	5.19
Niles Irvington												15,600	2.95
Calaveras												31,615	5.99
Bay Div'n #1	102,131											112,113	21.23
" " #2			26,094	78,856			3,867					115,133	21.81
" " #3						127,103		43,184		917			
						5,725*		1,908*		271*		179,108	33.92
Alameda Cr. Siphon					2,942	93				2,972		6,007	1.14
C. S. #1	4,948											90,487	17.14
C. S. #2	84,317							716				102,559	19.42
Sunset & C. S. #3	255							145	14,491		5,192		
									120*		119*	20,322	3.85
Sunset Pipeline	45,211	37,885											
	105*	67*										83,605	15.83
San Andreas Br.of	41	5,907											
Sunset Pipeline		71*										6,019	1.14
San Andreas #1												26,618	5.04
" " #2												63,309	11.99
Baden-Merced												35,710	6.77
San Andreas Outlet Conn.Pipes	1,739	873				1,276						9,781	1.85
Palo Alto												28,049	5.31
Pilarcitos Aqued.												9,027	1.71
Stone Dam "												7,315	1.39
C.S. - S.A. "				356		603						2,397	.45
TOTAL	238,747	44,803	26,094	79,212	2,942	134,800	3,867	45,953	14,611	4,160	5,311	1,095,535	207.48

*Tapers, Valves, Meters and Specials

TABLE NO. 24

PIPE RECORDS
CITY DISTRIBUTION SYSTEM

WROUGHT IRON, DUCTILE IRON AND STEEL PIPE

Size	Total Pipe in Ground June 30, 1963	Pipe Laid 1963-64	Removed or Abandoned 1963-64	Total Pipe in Ground June 30, 1964
0-3/4"	11,887	0	0	11,887
1	32,943	0	0	32,943
1-1/4	3,728	0	0	3,728
1-1/2	136,175	0	1,706	134,469
2	167,728	244	3,455	164,517
3	24,577*	0	11,820	12,757
4	3,886	0	0	3,886
5	804	0	0	804
6	3,809	0	0	3,809
6-5/8 O.D.	0	680	0	680
8-5/8 O.D.	254*	68	0	322
18-5/8 O.D.	1,325*	504	0	1,829
12	6,555	18	0	6,573
13	678	0	0	678
16	22,539	0	4,000	18,539
20	67,881	6,475	0	74,356
22	25,309	0	0	25,309
23-1/2	3,637	0	1,600	2,037
24	50,187	7,308	0	57,495
30	42,553	0	0	42,553
33	2,409	0	0	2,409
36	56,596	0	0	56,596
37-1/2	8,896	0	0	8,896
44	22,690	0	650	22,040
48	12,060	0	0	12,060
60	26,216	0	0	26,216
TOTAL W.I.,D.I.&S.	735,322*	15,297	23,231	727,388

TRANSITE PIPE

6"	17,049	0	0	17,049
8"	24,203	0	0	24,203
TOTAL TRANSITE	41,252	0	0	41,252

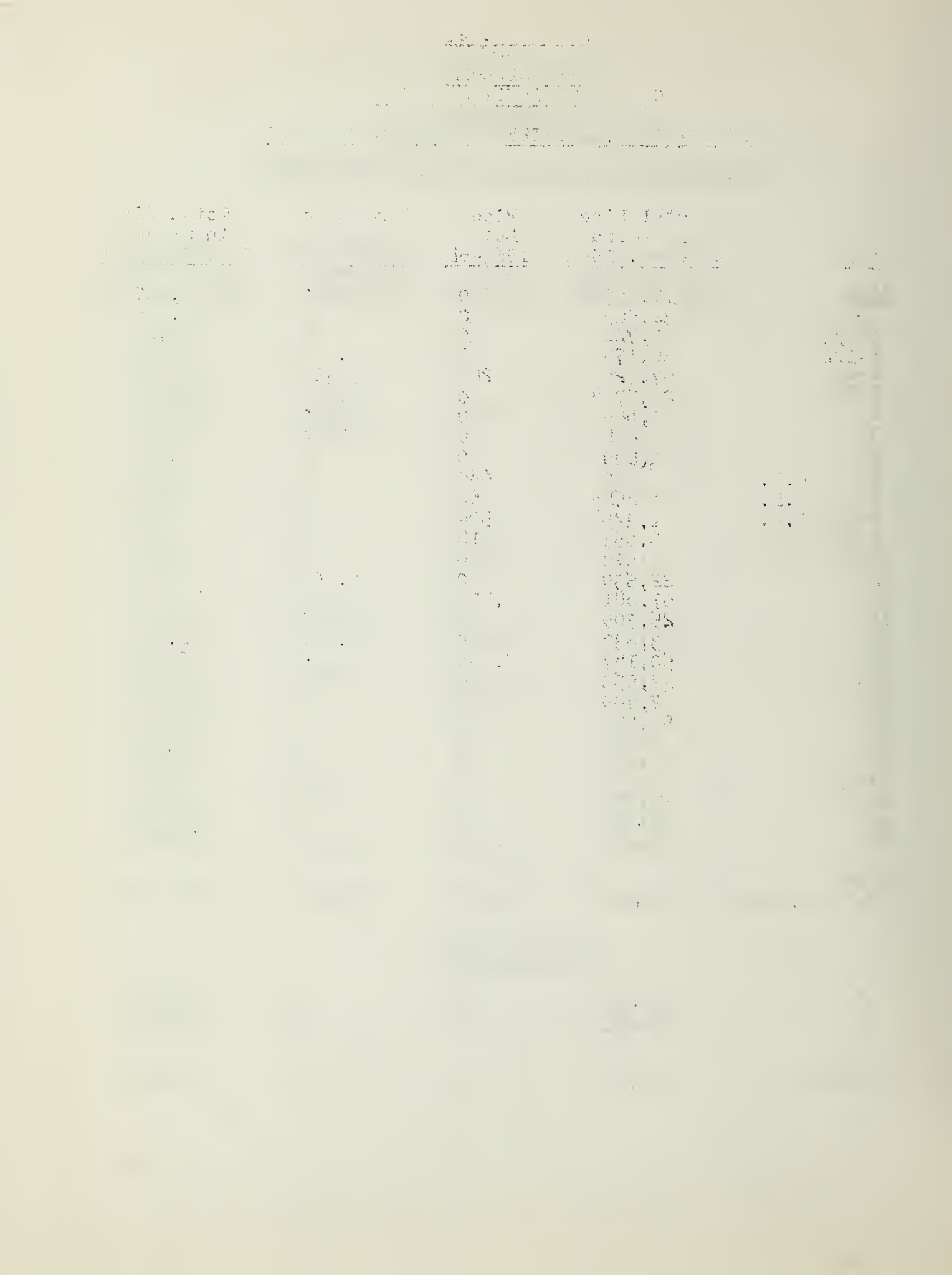

TABLE NO. 24 (Cont'd)

CAST IRON PIPE

Size	Total Pipe in Ground June 30, 1963	Pipe Laid 1963-64	Removed or Abandoned 1963-64	Total Pipe in Ground June 30, 1964
2"	26,708	99	718	26,089
3	54,326	327	785	53,868
4	493,107	2,668	937	494,838
6	1,953,184	28,350	752	1,980,782
8	1,674,329	11,899	4,025	1,682,203
10	5,396	0	350	5,046
12	565,318	6,228	1,661	569,885
16	330,680	4,436	350	334,766
20	22,592	0	0	22,592
22	19,058	0	0	19,058
24	60,256	0	0	60,256
30	4,397	0	0	4,397
TOTAL C.I.	5,209,351	54,007	9,578	5,253,780
TOTAL ALL	5,985,925*	69,304	32,809	6,022,420
MILES	1,133.698*	13.126	6.214	1,140.610

*Revised figures based on more thorough research of files and records.

TABLE NO. 25

VALVE RECORDS

June 30, 1964

CITY DISTRIBUTION SYSTEM

Gates		Service Gates		Blow-Offs		Air Valves		Check Valves		Stop Cocks	
2"	126	3"	540	0¾"	9	0¾"	246	1½"	7	5/8"	18
3	218	4	900	1	43	1	242	2	10	3/4	136
4	1,348	6	615	1½	256	1½	532	3	1	1	198
6	4,824	8	413	2	907	2	345	4	13	1½	911
8	4,292	12	17	3	240	3	5	6	37	2	2,449
10	5			4	640	4	0	8	29		
12	1,016			6	260	6	12	12	4		
16	513			8	133	8	298	16	2		
20	32			12	19						
22	20			16	3						
24	63										
30	23										
36	21										
37½	2										
42	3										
48	1										
	12,507		2,485		2,510		1,680		103		3,712

SUBURBAN SYSTEM

GATES

1"	-	5"	-	12"	93	18"	14	30"	22	48"	12
2	317	6	585	14	1	20	17	36	22	54	6
3	39	8	652	15	-	22	2	42	30		
4	187	10	42	16	49	24	15	44	4		
									TOTAL		2,099

Butterfly Valves		Sluice Gates	Air Relief & Vacuum Valves	Check Valves	Stop Cock	Miscl.
48"	2	26	792	311	316	4

TABLE NO. 26

CONTRACT DATA 1963-64

Contract No.	Title of Contract	Division	No. of Bidders	Contractor	Date of Award	Date of Completion	% Complete 6-30-64	Bid Price	Total Cost to 6-30-64
969	Pulgas Temple Water Supply	Peninsula	3	Wenrick & Associates	6-18-63	9-19-63	100	$ 20,597.59	$ 20,433.69
984	Construct Roof & Rehabilitate Lining - University Mound Reservoir - North Basin	General	8	Engstrum & Nourse	3-27-62	8-2-63	100	1,493,742.17	1,480,460.76
988	Lay 4",6" & 8" C.I. Mains in Mendosa Ave. & Others	C.D.D.	1	Associated Pipeline,Inc.	6-11-62	7-30-63	100	10,901.50	10,548.42
997	Construction of Forest Hills Pump Station	General	4	S & Q Construction Co.	4-30-63	10-3-63	100	43,547.80	43,845.23
1007R	Sunol Pump Station Alterations and Electric Work	Alameda	4	Mitchell Plumbing Co.	5-21-63	7-26-63	100	3,800.00	3,800.00
1029	Enlarge Palo Alto Pipeline Service at Redwood City	Peninsula	5	S & Q Construction Co.	10-15-63	2-8-64	100	31,131.00	29,515.00
1063	James H. Turner Dam(San Antonio Project) - Dam Site & Reservoir Clearing	General	9	Chandler Newman Construction Co.	1-15-63	7-29-63	100	114,500.00	114,500.00
1063A	Construction of Fence - James H. Turner (San Antonio) Reservoir	General	6	Alves - Pools, Inc.	1-29-63	7-26-63	100	22,905.00	21,103.72
1064	James H. Turner Dam Project Road Relocation, Alameda Co.	General	4	E.G.Alves Construction Co. Inc.	10-22-63	4-10-64	100	169,366.90	181,974,28
1065	Installation of Valve & Bypass C.S.P.L. No. 2 at El Cerrito Rd.	Peninsula	5	Associated Pipeline,Inc.	4-23-63	7-18-63	100	44,666.00	45,350.00
1069	Lay 6-5/8",18" & 24" Steel Mains in Geneva & Ocean Aves.	C.D.D.	4	Underground Construction Co.	2-13-63	1-10-64	100	56,619.00	58,741.65
1085	Reroof Stanford Heights Reservoir in S.F.	General	7	Roy Madsen Construction Co.	4-30-63	8-17-63	100	32,728.00	35,874.00

TABLE NO. 26 (Cont'd)

CONTRACT DATA 1963-64

Contract No.	Title of Contract	Division	No. of Bidders	Contractor	Date of Award	Date of Completion	% Complete 6-30-64	Bid Price	Total Cost to 6-30-64
1086	Reconstruct Timber Bridges & Roadway, Newark to Newark Slough	Alameda	11	Roy Madsen Construction Co.	6-25-63	12-18-63	100	$ 36,565.00	$ 40,200.00
1089	Lay 16",20" & 24" C.I. & Steel Mains in Madrid, Geneva, Huron & Others	C.D.D.	8	McGuire & Hester	5-14-63	11-6-63	100	283,216.00	279,066.40
1090	Construction of Corporation Yard, San Francisco	General	12	Cahill Construction Co.	12-11-62	4-8-64	100	1,256,000.00	1,260,301.14
1091	Lay 8",12" & 16" C.I. Mains in Army,Pennsylvania,Selby,Newcomb and Others	C.D.D.	3	Associated Pipeline,Inc.	7-5-63	1-6-64	100	119,695.50	119,993.05
1092	Cement Mortar Line 22",30",36", 37" & 48" Steel Pipe in Harrison, San Jose, Holladay, Chenery & Others	C.D.D.	3	Pipe Linings, Inc.	9-17-63	3-5-64	100	133,890.00	136,249.60
1095	Lombard Street Reservoir Rehabilitation	General	4	Hart & Hynding,Inc.	8-13-63	--	99	250,800.00	249,120.50
1096	Construction of San Andreas Outlet Tower No. 3 Chlorination Sta.	Peninsula	10	C.Norman Peterson Co.	1-7-64	--	99	69,703.00	68,806.49
1097	Construction of Rock River Chlorination Bldg. in Tuolumne Co.	General	3	Chas. I.Cunningham Co.	9-3-63	1-10-64	100	3,993.00	3,993.00
1099	Construction of James H. Turner Dam (San Antonio Project)	General	11	Peter Kiewit Sons' Co.	3-12-63	--	74	4,390,132.00	3,543,278.87
1100	Construction of Bay Division Pipeline No.4 - Section "B"	General	4	United States Steel Corp.	4-30-63	--	92	6,285,030.12	5,742,844.04
1108	Lay 4" C.I. Main in Day Street west of Castro Street	C.D.D.	3	W. L. Fairey	11-7-63	2-20-64	100	3,102.75	3,142.15
1109	Lay 6" C.I. Main in Gilroy St. and Ignacio Avenue	C.D.D.	3	M.Murphy,Jr.	6-3-64	--	0	12,480.50	--

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TABLE NO. 26 (Cont'd)

CONTRACT DATA 1963-64

Contract No.	Title of Contract	Division	No.of Bidders	Contractor	Date of Award	Date of Completion	% Complete 6-30-64	Bid Price	Total Cost to 6-30-64
1111	Construction of Fence - Lake Merced Pumping Plant	General	4	International Steel Fence Co.	5-14-63	7-24-63	100	$ 4,500.50	$ 4,500.50
1112	Construction of Fence - San Andreas Watershed Lands (San Mateo County)	Peninsula	3	Wulfert Co., Inc.	8-6-63	10-31-63	100	15,996.00	14,950.56
1113	Lay 4" & 6" C.I. Mains in Magellan, Dorantes & Others	C.D.D.	4	McGuire & Hester	9-17-63	2-11-64	100	191,095.00	185,240.37
1114	Replace Sunol Pipeline under Laguna Creek (in Alameda Co.)	Alameda	5	McGuire & Hester	6-25-63	8-20-63	100	12,210.00	12,538.00
1115	Lay 6" & 16" C.I. Mains in University between Mansell and Olmstead	C.D.D.	4	M.Murphy,Jr.	6-12-63	1-8-64	100	15,319.00	15,091.42
1116	Lay 8" C.I. Main in Corbett Ave. North of Glendale St.	C.D.D.	3	W.L. Fairey	7-1-63	9-19-63	100	10,591.00	10,784.28
1117	Lay 8" C.I. Main in Crestmont Drive	C.D.D.	3	M.Murphy,Jr.	10-16-63	3-20-64	100	5,661.25	5,666.51
1119	Lay 8" C.I. Main in 19th Ave. South of Wawona Street	C.D.D.	3	W.L. Fairey	8-21-63	4-2-64	100	6,485.25	7,133.14
1120	Annual Paving Contract,Fiscal Year Ending June 30, 1964	C.D.D.	1	Pacific Pavements Co.,Ltd.	6-10-63	6-30-64	100	268,000.00	311,671.03
1126	Lay 6" C.I. Main in Lombard St. between Franklin St. & Van Ness Ave.	C.D.D.	3	M.Murphy,Jr.	8-15-63	1-9-64	100	12,529.00	13,081.60
1127	Relocate 44" San Andreas Pipe-Line-Former Silva Tract Millbrae	Peninsula	5	.Underground Constr. Co., Inc.	3-3-64	--	84	207,656.00	175,127.40
1129	Lay 6" & 8" C.I.Mains in Velasco Ave. bet. Calgary & Schwerin Sts.	C.D.D.	3	W.L. Fairey	8-28-63	1-17-64	100	10,235.90	10,602.40

TABLE NO. 26 (Cont'd)

CONTRACT DATA 1963-64

Contract No.	Title of Contract	Division	No. of Bidders	Contractor	Date of Award	Date of Completion	% Complete 6-30-64	Bid Price	Total Cost to 6-30-64
1130	Lay 8" C.I. Main in Hawthorne St. North of Folsom Street	C.D.D.	3	Associated Pipeline, Inc.	8-21-63	1-22-64	100	$ 7,008.50	$ 7,115.58
1131	Lay 8",8-5/8",24" & 30" C.I. & Steel Mains in Orizaba, Belle and Others	C.D.D.	5	McGuire & Hester	2-18-64	--	71	111,087.00	72,839.28
1132A	City of Hayward Service Connection to Bay Division Pipeline No.1 & 2, near Newark Valve House	Alameda	8	Underground Construction Co., Inc.	9-24-63	12-19-63	100	45,429.00	48,301.73
1135	Lay 4" C.I. Main in Shakespeare Street	C.D.D.	2	W. L. Fairey	1-20-64	3-5-64	100	5,922.00	5,546.10
1136	Lay 6" C.I. Main in Lobos Street West of Caine Avenue	C.D.D.	3	Associated Pipeline, Inc.	12-23-63	--	0	5,700.50	--
1137	Lay 4" & 6" C.I. Mains in Casitas Ave. East of Lansdale Avenue	C.D.D.	3	W. L. Fairey	5-12-64	--	0	7,628.50	--
1138	Burning Debris - James H. Turner Dam Project (Alameda County)	General	5	Heim Bros., Inc.	12-24-63	2-24-64	100	11,070.00	10,330.00
1139	Lay 8" & 12" C.I. Mains in Herman, Mason and Irving Sts.	C.D.D.	4	Associated Pipeline, Inc.	1-29-64	4-7-64	100	30,665.60	32,769.40
1140	Lay 4" & 6" C.I. Mains in Van Ness Ave. between California and Union Streets	C.D.D.	5	Associated Pipeline, Inc.	3-3-64	5-13-64	100	28,872.00	30,349.54
1141	Lay 8" C.I. Main in Haight St. between Market St. and Central Avenue	C.D.D.	6	Associated Pipeline, Inc.	2-18-64	--	77	118,309.00	68,662.00
1142	Lay 6" C.I. Main in Burrows St. between Bowdoin & Hamilton Streets	C.D.D.	3	W. L. Fairey	12-30-63	2-14-64	100	3,711.50	3,959.83

TABLE NO. 26 (Cont'd)

CONTRACT DATA 1963-64

Contract No.	Title of Contract	Division	No.of Bidders	Contractor	Date of Award	Date of Completion	% Complete 6-30-64	Bid Price	Total Cost to 6-30-64
1143	Lay 6" C.I. Main in Geneva Avenue between Alemany Blvd. and Baywood Court	C.D.D.	3	M.Murphy, Jr.	3-10-64	4-23-64	100	$ 5,328.00	$ 5,712.02
1144	Lay 8" C.I. Main in Alemany Blvd. between Mt. Vernon & Niagara Avenues	C.D.D.	3	W. L. Fairey	5-20-64	7-8-64	100	6,835.00	6,966.57
1151R	Exploratory Drilling for Crystal Springs Bypass Tunnel	Peninsula	4	Continental Drilling Co.	3-31-64	--	95	15,080.00	14,308.00
1153	Lay 4" & 6" C.I. Mains in McLaren Avenue, 40th Avenue and Others	C.D.D.	5	Lowrie Paving Co., Inc.	6-3-64	--	0	68,759.25	--
1157	Annual Paving Contract, Fiscal Year Ending, June 30, 1965	C.D.D.	1	Pacific Pavements Co.,Ltd.	6-10-64	--	0	310,382.00	--
1164	Lay 8" C.I. Main in Alemany Blvd. east of Banks Street	C.D.D.	3	W. L. Fairey	6-23-64	--	0	4,985.95	--

ORGANIZATION AND PERSONNEL

EXECUTIVE

J. H. Turner	General Manager and Chief Engineer (Retired September 1, 1963)
G. D. Burr	Assistant General Manager and Chief Engineer (Retired December 1, 1963)
H. C. Medbery	Assistant General Manager and Chief Engineer (From December 1, 1963)

RESOURCES & PLANNING

R. D. Keeley	Senior Civil Engineer

ENGINEERING DIVISION

C. A. Lauenstein	Principal Engineer
P. T. Matsumura	Senior Civil Engineer
D. P. Cooper	Senior Civil Engineer

CITY DISTRIBUTION DIVISION

K. R. Boyd	Manager
P. J. Phillips	Assistant Manager

SHOPS DIVISION

T. U. Waters	Superintendent

PENINSULA DIVISION

J. E. O'Marie	Manager
R. L. Borame	Assistant Manager

ALAMEDA DIVISION

C. L. Hughes	Manager
R. J. Roper	Assistant Manager

WATER PURIFICATION DIVISION

H. W. Tracy	Manager

COMMERCIAL DIVISION

J. J. Lyons	Manager
J. W. Cooper	Assistant Manager

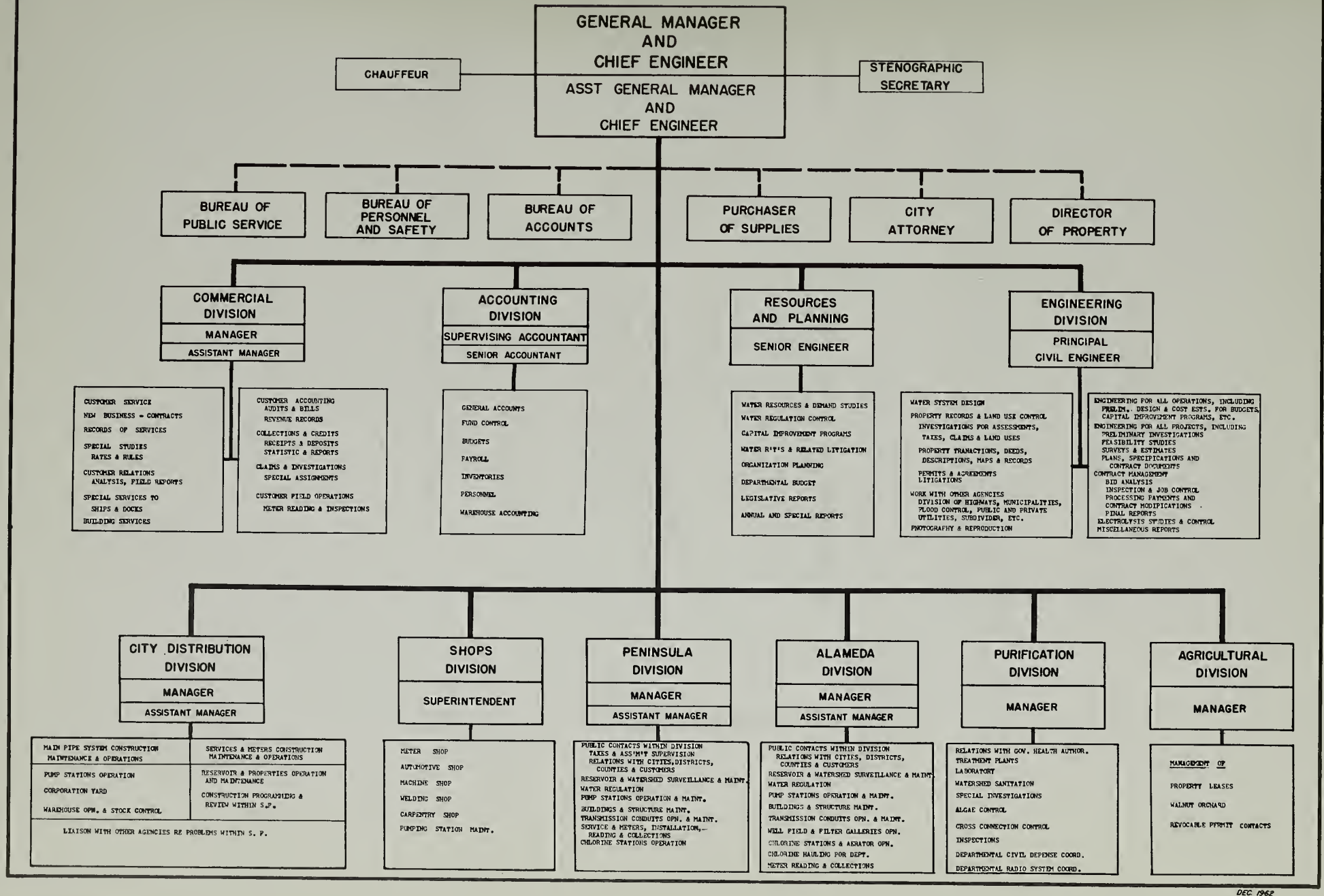
AGRICULTURAL AND LAND DIVISION

J. G. Brucato	Manager

ACCOUNTING DIVISION

W. J. Dwyer	Chief Accountant
A. A. Lenzio	Head Accountant

CITY AND COUNTY OF SAN FRANCISCO
PUBLIC UTILITIES COMMISSION
SAN FRANCISCO WATER DEPARTMENT
ORGANIZATION CHART



DEC. 1962

20K

R E T I R E D

July 1, 1963 through June 30, 1964

During this fiscal year, the following employees were retired from service and recognition is given to their faithful service in the organization:

Employee	Classification	Years of Service
George D. Burr	Asst. General Manager & Chief Engineer	37
John S. Carpenter	Asst. Civil Engineer	15
Joseph P. Cava	Civil Engineer	34
Rafael Fedele	Meter Repairman	24
Francis Lennon	Head Clerk	34
Michael Loftus	Laborer	18
Louis R. Osterero	Billing Pre-Auditor	38
Gitchel Rutherford	Construction Inspector	9
Zenas H. Taylor	Head Accountant	28
James H. Turner	General Manager & Chief Engineer	41

I N M E M O R I A M

John A. Barella	March 24, 1964	9
Russell G. Jones	June 21, 1964	35
Cornelius Sullivan	December 24, 1963	14